

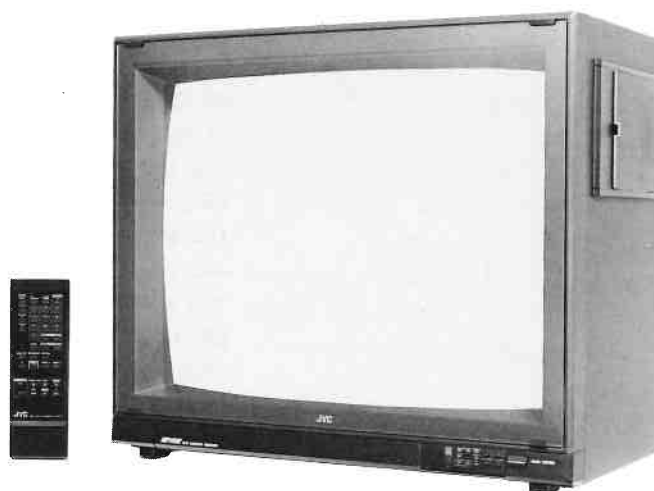
609

# JVC

## SERVICE MANUAL

26" SYSTEM COLOR TV

MODEL **AV-2676** (US)



- BASIC CHASSIS : S-MARK II
- FAMILY MODEL : AV-2690/AV-2090

### ■ SAFETY PRECAUTION

As for SAFETY PRECAUTION including electric shock prevention, use of designated components, or safety inspection after servicing, refer to the appended NTSC.

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# 1. SPECIFICATIONS

DIMENSIONS : 67.2 cm (W) x 49.6 cm (D) x 55.6 cm (H) [94.8 cm (W), With reflectors opened to the maximum position.]

WEIGHT : 47.3 kg

TV System and Color System

VHF/UHF ..... CCIR (M), NTSC, BTSC System (Multi-ch. sound)

TV Receiving Channels and Frequency

VL Band (02 ~ 06) ..... 54 MHz ~ 88 MHz

VH Band (07 ~ 13) ..... 174 MHz ~ 216 MHz

UHF Band (14 ~ 83) ..... 470 MHz ~ 890 MHz

CATV Receiving Channels and Frequency (142 channels Quartz Synthesizer System)

Low Band (02 ~ 06, A-8 ~ A-6) by (02 ~ 06 & 01, 93, 94) .....

High Band (07 ~ 13) by (07 ~ 13) .....

Mid Band (A ~ I) by (14 ~ 22) .....

Super Band (J ~ W) by (23 ~ 36) .....

Hyper Band (W+1 ~ W+29) by (37 ~ 65) .....

Sub Mid Band (A-5 ~ A-1) by (95 ~ 99) .....

} 54 MHz ~ 474 MHz

On screen channel indication ..... 02 ~ 13, 14 ~ 83 channels (TV)

..... 01 ~ 65, 93 ~ 99 channels (CATV)

Intermediate Frequency

Video IF Carrier ..... 45.75 MHz

Sound IF Carrier ..... 41.25 MHz (4.5 MHz)

Color Sub Carrier ..... 3.58 MHz

Antenna Input Impedance ..... 75  $\Omega$  unbalanced (VHF)/300  $\Omega$  balanced (UHF)  
(Refer to functions as to ANT input.)

Power Input ..... AC120 V, 60 Hz

Power Consumption ..... 155 W (max.), 120 W (avg.)

Picture Tube ..... 26" In-Line type

(Full square data grade type)

Viewable Picture Size ..... 30.5 cm (H) x 40.7 cm (W)

High Voltage ..... 28.5 kV  $\pm$  1 kV (at zero beam current)

Speaker ..... 12 cm round type x 2 (Built-in)

Audio Power Output ..... 5 W x 5 W, 8  $\Omega$  (5 W + 5 W, EXT. SP 8  $\Omega$ )

Tube ..... 1

IC : ..... 26 (in TV), 1 (in Remocon)

Transistor ..... 94 (in TV), 5 (in Remocon)

Video External Input (3 inputs) ..... 1 Vp-p 75  $\Omega$

(But "3" terminals are bridge termination)

Audio External Input (3 inputs) ..... 390 mV rms (-6 dBs), High Impedance

(But "3" terminals are bridge out)

Line output (audio) ..... 150 mV rms (-14 dBs),

Low Impedance (400 Hz, 50% mod.)

Audio output (Variable) ..... 0 mV ~ 390 mV rms (-6 dBs), Low Impedance  
(400 Hz, 100% mod.)

(Design and specifications subject to change without notice)

# SAFETY PRECAUTION

1. The design of this product contains special hardware, many circuits and components specially for safety purposes. For continued protection, no changes should be made to the original design unless authorized in writing by the manufacturer. Replacement parts must be identical to those used in the original circuits. Service should be performed by qualified personnel only.
2. Alterations of the design or circuitry of receiver should not be made. Any design alterations or additions will void the manufacturer's warranty and will further relieve the manufacturer of responsibility for personal injury or property damage resulting therefrom.
3. Many electrical and mechanical parts in television sets have special safety-related characteristics. These characteristics are often not evident from visual inspection nor can the protection afforded by them necessarily be obtained by using replacement components rated for higher voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in the parts list of Service manual. **Electrical components having such features are identified by shading on the schematics and by (  $\Delta$  ) on the parts list in Service manual.** The use of a substitute replacement which does not have the same safety characteristics as the recommended replacement part shown in the parts list in Service manual may create shock, fire, or other hazards.
4. **Use isolation transformer when hot chassis.**  
The chassis and any sub-chassis contained in some product are connected to one side of the AC power line. An isolation transformer of adequate capacity should be inserted between the product and the AC power supply point while performing any service on some product when the HOT chassis is exposed.
5. **Don't short between the LIVE side ground and NEUTRAL side ground when repairing.**  
Some model's power circuit is partly different in the GND. The difference of the GND is shown by the LIVE (primary:  $\perp$ ) side GND and the NEUTRAL (secondary:  $\text{///}$ ) side GND. Don't short between the LIVE side GND and NEUTRAL side GND or never measure with a measuring apparatus (oscilloscope etc.) the LIVE side GND and NEUTRAL side GND at the same time.  
If above note will not be kept, a fuse or any parts will be broken.
6. If any repair has been made to the chassis, it is recommended that the  $B_1$  setting should be checked or adjusted (See ADJUSTMENT OF  $B_1$  VOLTAGE).
7. The high voltage applied to the picture tube must conform with that specified in Service manual. Excessive high voltage can cause an increase in X-Ray emission, arcing and possible component damage, therefore operation under excessive high voltage conditions should be kept to a minimum, or should be prevented. If severe arcing occurs, remove the AC power immediately and determine the cause by visual inspection (incorrect installation, cracked or melted high voltage harness, poor soldering, etc.). To maintain the proper minimum level of soft X-Ray emission, components in the high voltage circuitry including the picture tube must be the exact replacements or alternatives approved by the manufacturer of the complete product.
8. Do not check high voltage by drawing an arc. Use a high voltage meter or a high voltage probe with a VTVM. Discharge the picture tube before attempting meter connection, by connecting a clip lead to the ground frame and connecting the other end of the lead through a  $10k\Omega$  2W resistor to the anode button.
9. When service is required, observe the original lead dress. Extra precaution should be given to assure correct lead dress in the high voltage circuit area. Where a short circuit has occurred, those components that indicate evidence of overheating should be replaced. Always use the manufacturer's replacement components.
10. **Isolation Check**  
**(Safety for Electrical Shock Hazard)**  
After re-assembling the product, always perform an isolation check on the exposed metal parts of the cabinet (antenna terminals, channel selector knobs, metal cabinet, screwheads, earphone jack, control shafts, etc.) to be sure the product is safe to operate without danger of electrical shock.

## (1) Dielectric Strength Test

The isolation between the AC primary circuit and all metal parts exposed to the user, particularly any exposed metal part having a return path to the chassis should withstand a voltage of 1,100V AC (r.m.s.) for a period of one second.

... Withstand a voltage of 1,100V AC (r.m.s.) to an appliance rated up to 120V, and 3,000V AC (r.m.s.) to an appliance rated 200V or more, for a period of one second.

This method of test requires a test equipment not generally found in the service trade.

## (2) Leakage Current Check

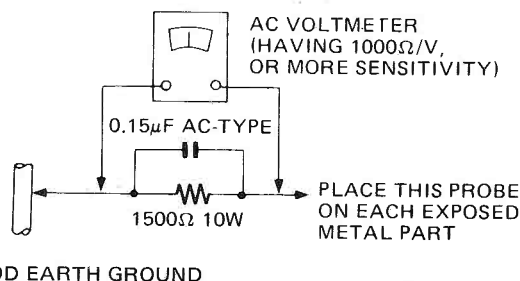
Plug the AC line cord directly into the AC outlet (do not use a line isolation transformer during this check.). Using a "Leakage Current Tester", measure the leakage current from each exposed metal part of the cabinet, particularly any exposed metal part having a return path to the chassis, to a known good earth ground (water pipe, etc.). Any leakage current must not exceed 0.5mA AC (r.m.s.).

## • Alternate Check Method

Plug the AC line cord directly into the AC outlet (do not use a line isolation transformer during this check.). Use an AC voltmeter having 1,000 ohms per volt or more sensitivity in the following manner. Connect a  $1,500\Omega$  10W resistor paralleled by a  $0.15\mu F$  AC-type capacitor between an exposed metal part and a known good earth ground (water pipe, etc.).

Measure the AC voltage across the resistor with the AC voltmeter.

Move the resistor connection to each exposed metal part, particularly any exposed metal part having a return path to the chassis, and measure the AC voltage across the resistor. Now, reverse the plug in the AC outlet and repeat each measurement. Any voltage measured must not exceed 0.35V AC (r.m.s.). This corresponds to 0.5mA AC (r.m.s.).



## 11. High voltage hold down circuit check.

After repair of the high voltage hold down circuit, this circuit shall be checked to operate correctly.

See item "How to check the high voltage hold down circuit".

# PURITY, CONVERGENCE AND WHITE BALANCE

\* The locations of SERVICE SWITCH, SCREEN VR, CUT-OFF VR and DRIVE VR are described in the ALIGNMENT LOCATION of the schematic diagram.

## PICTURE TUBE

The picture tube is a precision in-line gun type. For this picture tube, dynamic convergence is carried out by a precision deflection yoke which eliminated the use of convergence yoke and convergence circuit. The adjustment of picture tube is therefore made easier as only the adjustment of static convergence by using a magnetic is enough. The deflection yoke and purity/convergence magnets assembly has been set at the factory and requires no field adjustments.

However, should the assembly be accidentally jarred or tampered with, some or all adjustments may be necessary.

## COLOR PURITY & VERTICAL CENTER

Loosen yoke retaining screw (Fig. B-1). With a sharp knife cut between the picture tube and the bond. Remove wedges completely and clean off dried adhesive from the picture tube. PAINT is used to lock the tabs of the purity/convergence magnet assembly in place (Fig. B-1). The paint must be removed with the end of a screwdriver before any adjustments are attempted.

(As to models equipped with a magnet locking ring, beforehand loosen it.

1. Select no signal UHF channel.
2. Let the purity tabs come in line horizontally as is shown in Fig. B-2. A long tab should be in the same direction as the other short tab.
3. Move the yoke slowly backward.
4. Turn the GREEN CUT-OFF VR to maximum and the RED and BLUE CUT-OFF VR to minimum. Then adjust the SCREEN VR so that the green band can be seen best. (Fig. B-3.)
5. Rotate the two tabs in the opposite directions and with them kept at an angle, together in either direction so that the green band is centered on the picture tube.
6. Check the vertical center position by displaying a horizontal line. Unless correct, bring it to the center by rotating the two tabs, kept at an angle, together in either direction. (Fig. B-4)
7. Repeat steps 5 and 6 alternately until the green band and the vertical center come to the center.
8. Move the yoke slowly towards the bell of the tube so that the whole surface of the picture tube is filled with a green pure raster.
9. Turning RED or BLUE CUT-OFF VR to maximum and GREEN CUT-OFF VR to minimum, make sure of a red or blue pure raster.
10. Secure yoke retaining screw (do not install wedges at this time).

(As to models equipped with a magnet locking ring, secure it and keep six magnets from moving even if it is touched slightly.

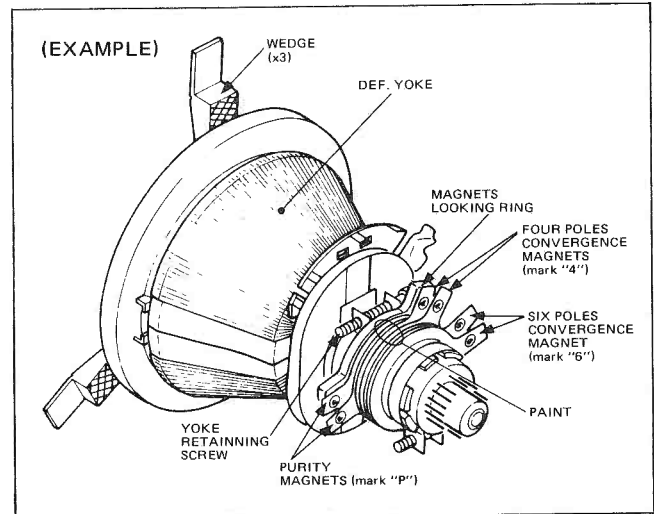


Fig. B-1

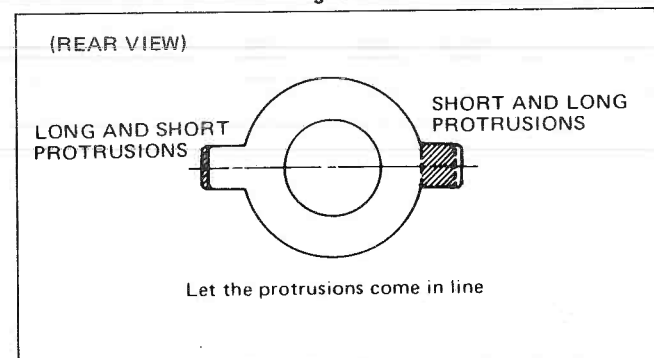


Fig. B-2

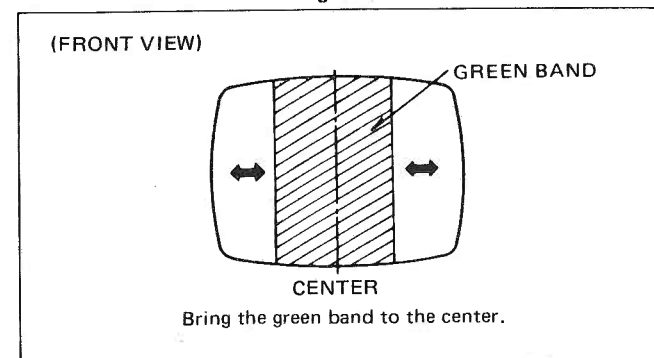
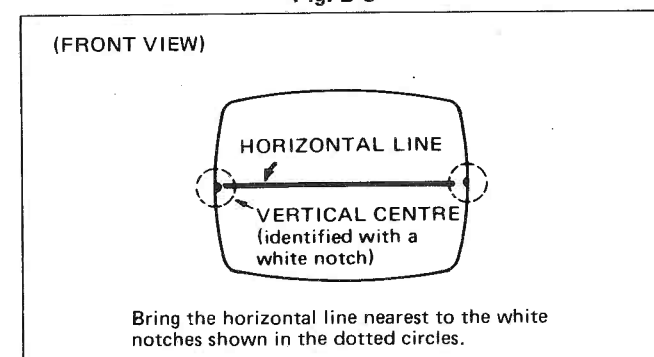


Fig. B-3



## STATIC CONVERGENCE & DYNAMIC CONVERGENCE

1. Connect a crosshatch generator to the antenna terminals and adjust BRIGHTNESS and CONTRAST control for a distinct pattern.
2. Adjust the convergence around the edges of the picture tube by tilting the yoke, up-down and left-right, and temporarily install one wedge at the top of the yoke. (Fig. B-7, 8, 9)
3. Rotate the front pair of tabs (four pole convergence magnet) as a unit to minimize the separation of the red and blue lines around the center of the screen. To adjust the convergence of red and blue, vary the angle between the tabs. (Fig. B-5)
4. Rotate the rear pair of tabs (six pole convergence magnets) as a unit to minimize the separation of the magenta (R/B) and green lines. (Fig. B-6)
5. Adjust the spacing of the rear tabs to converge the magenta and green lines.
6. Apply paint to fix six magnets  
(As to models equipped with a magnet locking ring, tighten it.)
7. Remove the wedge installed temporarily on the yoke.
8. Tilting the angle of the yoke up, down and sideways, and adjust the yoke so as to obtain the circumference convergence. (Fig. B-8, 9)
9. Insert three wedges to the position as shown in Fig. B-10 to obtain the best circumference convergence.
10. Wedge has a backing of double sided adhesive tape. Therefore, tear off one side of adhesive tape, and fix the wedges.
11. White balance adjustment (Black & White tracking) can now be performed.

## WHITE BALANCE ADJUSTMENT (Black and White Tracking)

1. Display a monochrome pattern.
2. Set the RED and GREEN DRIVE VR for their mechanical center.
3. Turn the RED, GREEN and BLUE CUT-OFF VRs and the SCREEN VR fully counterclockwise.
4. Display a horizontal line. (refer to "HORIZONTAL LINE")
5. Turn SCREEN VR slowly clockwise until a very faint horizontal line appears.
6. Turn the CUT-OFF VRs of the color which has appeared first, clockwise by about  $10^\circ$  and then adjust the SCREEN VR again so that the color may shine faintly.
7. Turn the other color CUT-OFF VRs slowly clockwise until a reasonable white line appears.
8. Return the monochrome pattern. (refer to "HORIZONTAL LINE")
9. Adjust the RED and GREEN DRIVE VRs for best white highlights.

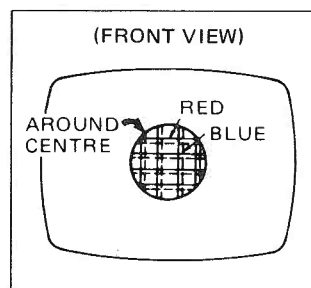


Fig. B-5

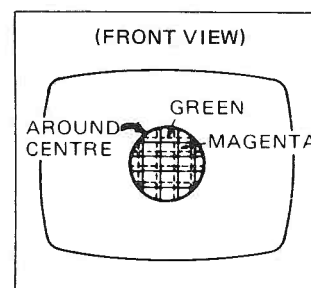


Fig. B-6

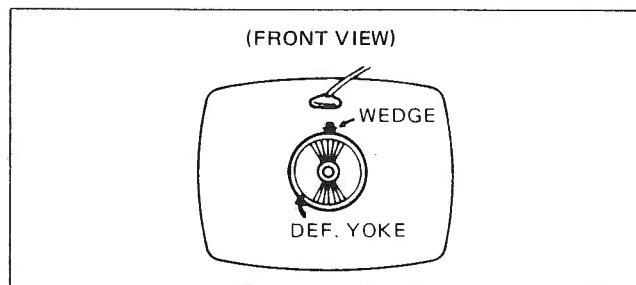


Fig. B-7

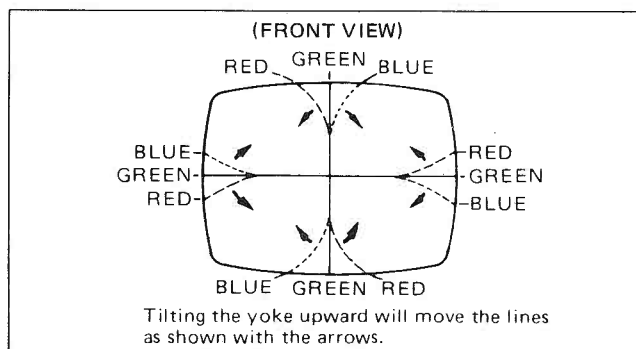


Fig. B-8

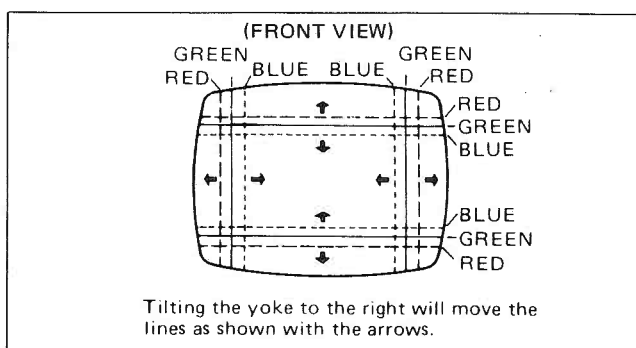


Fig. B-9

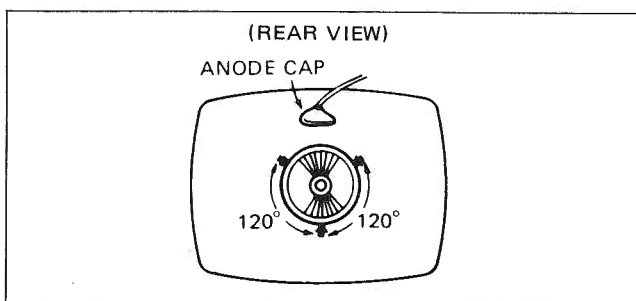


Fig. B-10



# SERVICE ADJUSTMENTS

- \* ADJUSTMENTS EXCEPT THE FOLLOWING DESCRIPTION ARE MENTIONED IN THE SERVICE MANUAL TEXT.
- \* SOME ITEM OF ADJUSTMENT METHOD IS NOT APPLICABLE TO SOME MODEL.  
IN SUCH A CASE OMIT THE ITEM.
- \* Adjustments except the following description are mentioned in the service manual text.
- \* Use the undermentioned adjustment methods after repair or for readjustment of misadjustment.
- \* The locations of the under mentioned adjustment parts are described in the "Alignment Location" of the Schematic Diagram.
- \* Test point pins are not indicated in the printed circuit board, but in the Schematic Diagram under certain circumstances. In this case, look for test points, which are indicated in the Schematic Diagram, on the printed circuit board; and use it for test points even if there are not test point pins.

## B<sub>1</sub> VOLTAGE

Confirm that B<sub>1</sub> voltage exists between TP-91 and GND.

### NOTE

1. Some model's power circuit is partly different in the GND.  
The difference of the GND is shown by the LIVE (primary: ) side GND and NEUTRAL (secondary: ) side GND.  
In this case, use a suitable ground by checking whether LIVE side GND or NEUTRAL side GND in each schematic diagram.
2. Use isolation transformer when hot chassis.  
The chassis and any sub-chassis contained in some product are connected to one side of the AC power line. An isolation transformer of adequate capacity should be inserted between the product and the AC power supply point while performing any service on some product when the HOT chassis is exposed.
3. The tester used should be periodically calibrated at 20kΩ/V.

## SUB CONTRAST AND SUB BRIGHT

1. Set the CONTRAST, BRIGHT, PICTURE, and the COLOR knobs to the central position respectively (where they click).  
If STANDARD BUTTON provided, press it.  
(If EE SWITCH provided, Select the EE SWITCH OFF.)
2. Then align both the SUB CONTRAST VR and SUB BRIGHT VR until an ideal picture is obtained.

## BLACK LEVEL AND SUB BRIGHT

- BLACK LEVEL and SUB BRIGHT VR are correlated. Do not adjust them carelessly.
1. Set the CONTRAST, BRIGHT, PICTURE and the COLOR knobs to the central position respectively (where they click).  
If STANDARD BUTTON provided, press it.  
(If EE SWITCH provided, select the EE SWITCH OFF.)
  2. Turn the BLACK LEVEL VR fully clockwise.  
Receive a high-contrast picture and adjust brightness with the SUB BRIGHT VR in the usual way.  
(Turn the SUB BRIGHT VR while observing vertical flyback line; stop turning it just before vertical flyback line turns black.)

3. Turn the BLACK LEVEL VR counterclockwise, and adjust it so that black objects appear pure black and vivid.
4. Confirm the adjusted status on every channel.

## SUB TINT AND SUB COLOR

1. Set the CONTRAST, BRIGHT, PICTURE and the COLOR knobs to the central position respectively (where they click).  
If STANDARD BUTTON provided, press it.  
(If EE SWITCH provided, select the EE SWITCH OFF.)
2. Adjust the SUB TINT VR and SUB color VR to obtain human skin natural color.

## SUB PICTURE

1. Set the CONT., BRIGHT, PICTURE and the COLOR knobs to the central position respectively (where they click).  
\* If STANDARD BUTTON provided, press it. (If EE switch provided, select the EE SW, OFF).
2. Adjust the SUB PICTURE VR until an ideal picture is obtained.

## 3.58 MHz TRAP

1. Connect a color bar generator to the antenna terminal.
2. Connect oscilloscope probe to DELAY LINE output side.
3. Adjust the 3.58 MHz TRAP (T201) so that the 3.58 MHz signal is minimized. (Fig. C-1)

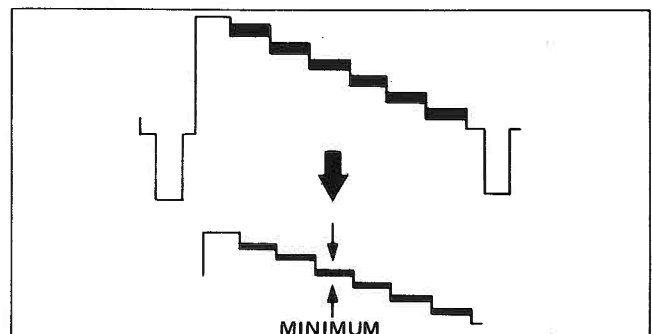


Fig. C-1

- \* Some item of adjustment method is NOT applicable to some model. In such a case omit the item.
- \* Adjustments except the following description are mentioned in the service manual test.
- \* Use isolation transformer when HOT chassis.

## COMB FILTER

1. Connect a color bar generator to the antenna terminal.
2. Connect an oscilloscope to COMB FILTER "Y" output position (TP-42). Magnify the color signal portions of the color bar waveform so that the 3.58 MHz elements become easy to observe.
3. Adjust PHASE Transf. (T201 and T202), and minimize the 3.58 MHz elements.
4. Regulate the COMB FILTER adjustment VR to further minimize the 3.58 MHz elements. (Fig. C-1)
5. Repeat steps 3 and 4 to fully minimize the 3.58 MHz elements. (Fig. C-1)

## VERTICAL HEIGHT AND LINEARITY

1. Set color bar generator to crosshatch or a pattern with which symmetry can be checked.
2. Reduce the vertical size with the VERTICAL HEIGHT VR.
3. Adjust the vertical symmetry with the VERTICAL LINEARITY VR.
4. Readjust the VERTICAL HEIGHT so that the picture extends to normal size.

## VERTICAL HEIGHT

1. Set the color bar generator to crosshatch or pattern with which symmetry can be checked.
2. Adjust the vertical symmetry with the VERTICAL HEIGHT VR.

## NOISE

### (RF A.G.C. Delay)

This control is set at the factory and rarely requires any adjustment. If a snowy picture appears on a medium to weak station adjust the noise control.

1. Turn control fully clockwise (or counterclockwise), maximum noise in picture.
2. Slowly turn VR counterclockwise (or clockwise) until snow or noise in picture just disappears.

**Note:** Check operation on strong channels. If overloading occurs (bending, poor color, loss of color sync, etc.) make compromise adjustment.

## 4.5 MHz TRAP

1. Tune in a local color station preferably a program with the least amount of movement and continuous audio.
2. Adjusting the V. IF DET. OUT Transf. (T105) so that beating with sound signal disappears.

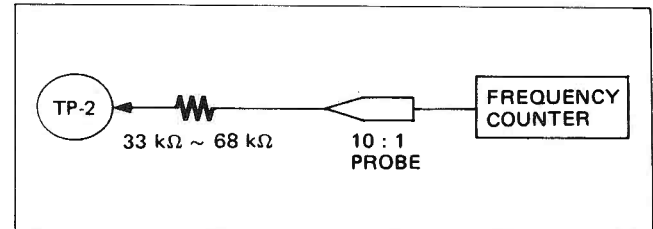
## HORIZONTAL WIDTH

Adjust H.WIDTH control coil by turning it with a hexagonal adjusting bar only if RIGHT and LEFT sides of pictures can't be seen.

## FOCUS

Adjust FOCUS VR for best overall definition and picture detail at normal brightness and contrast.

## REFERENCE FREQUENCY OSCILLATOR



Connect as shown above and adjust C205 (ceramic trimmer capacitor) so that the oscillation frequency is 4500.000 kHz  $\pm$  20 Hz or receive UHF AIR at AFC OFF position and adjust C205 so that the AIR becomes just tuning.

## HORIZONTAL OSCILLATOR

1. Set the H. FREQ. VR to the mechanical center position.
2. Connect the jumper clip between TP-33B and earth.
3. Adjust the H. FREQ. VR until picture is in view and locks or drift slowly back and forth.
4. Remove the jumper clip.
5. Make sure that the set maintains horizontal sync, when channels are switched.

## COLOR SYNC.

1. Receive a color bar signal.
2. Connect two jumper wires between TP-50 and TP-E and between TP-51A and TP-51B.
3. While rotating a TRIMMER CONDENSER using a non-metallic screwdriver, adjust it until the horizontal striped patterns with color become stationary or are slowly moving.
4. Remove jumper clips.
5. Confirm that color sync is not disrupted when channels are switched.

## H. CENTER

Centering is completed at the factory, although it may become distorted when CRT is changed.

In such case, selecting the H. CENTER SWITCH moves the picture left or right.

(Some model have H. CENTER TIP.)

## VERTICAL CENTER

Centering is completed at the factory, although it may become distorted when CRT is changed.

In such case, selecting the V. CENTER SWITCH moves the picture up or down. (Some model have V. CENTER TIP.)

- \* Some item of adjustment method is NOT applicable to some model. In such a case omit the item.
- \* Adjustments except the following description are mentioned in the service manual test.
- \* Use isolation transformer when HOT chassis.

## ON SCREEN

1. Display characters on the screen.
2. As shown in the Fig. C-2, adjust the character positions with the CLK VR (On screen adj. VR).
3. Confirm that the characters are also located approximately at the same positions on other channels.

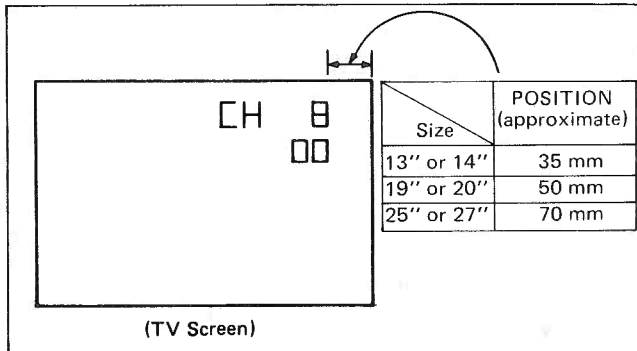


Fig. C-2

## HORIZONTAL LINE

### CUT-OFF SERVICE SWITCH

Select the CUT-OFF SERVICE SWITCH from N to S and a HORIZONTAL LINE will appear.

(When returning a monochrome pattern select the CUT-OFF SERVICE SWITCH from S to N and a monochrome pattern will appear.)

### CUT-OFF SERVICE TIP

Reconnect the CUT-OFF SERVICE TIP from N to S and a HORIZONTAL LINE will appear.

(When returning a monochrome pattern reconnect the CUT-OFF SERVICE TIP from S to N and a monochrome pattern will appear.)

### VIDEO CUT WIRER

Connect a jumper wire between TP-35A and TP-35B, after removing the VIDEO CUT WIRE, and a monochrome pattern will appear.

(Reconnect the VIDEO CUT WIRE to the normal position, after removing the jumper wire from TP-35A and TP-35B.)

## V. IF

1. Connect a color bar generator to antenna terminal.  
(When the signal is too strong, use the attenuator.)
2. Connect DC voltmeter (or tester) between AGC terminal of E. Tuner and earth.
3. Rotate NOISE VR so that RF. AGC voltage becomes  $DC\ 4.5\ V \pm 1\ V$ .
4. Adjust CW transformer so that the indicator becomes to minimum and also confirm that picture in optimum conditions is obtained.
5. Confirm the adjustment of NOISE VR.

## RF. AFC

1. Connect a color bar generator to antenna terminal.
2. Adjust AFC transformer so that the voltage of TP-16 becomes  $DC\ 7.0\ V \pm 0.5\ V$ .  
(Confirm to swing between about 9 V and 4 V previously.)

## S. IF

1. Tune in a local station preferably a program with the continuous audio.
2. Adjust TAKE OFF Transf. (T601) and S. IF Transf. (T602) so that the sound becomes to maximum without distortion.



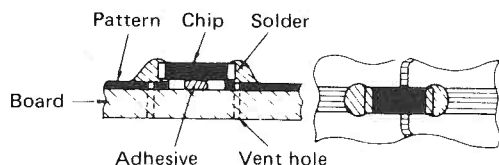
# REPLACEMENT OF THE CHIP

\* CHIPS ARE NOT USED ON CERTAIN MODELS. REFER TO THE DESCRIPTIONS ON THIS PAGE ONLY WHEN WORKING ON MODELS ON WHICH CHIPS ARE EMPLOYED.

\* Replacement of the chip on printed circuit board can be performed easily as follows.

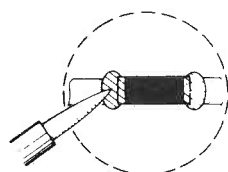
## 1 When mounted

[Resistor · Capacitor]

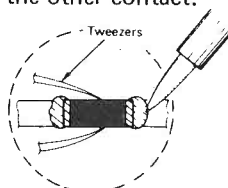


## 2 Removal of the chip

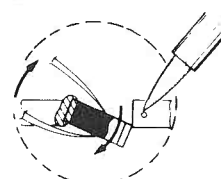
(1) Remove either of the soldered contacts.



(2) Hold the chip with tweezers and remove the other contact.



(3) Work the chip free from the adhesive with tweezers.

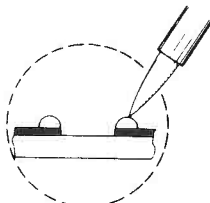


## 3 Preheating and soldering of chip pieces

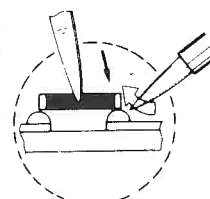
Be sure to preheat chip pieces (except the transistor) especially the capacitor before soldering with hot air, about 150°C (hair dryer or such can be used) for about 2 minutes. Then, immediately solder with an iron of about 30W.

## 4 Replacing the chip pieces

(1) Apply the solder to the board first.



(2) Hold the chip with tweezers and solder it in place, hold the iron at a 45° angle when soldering.

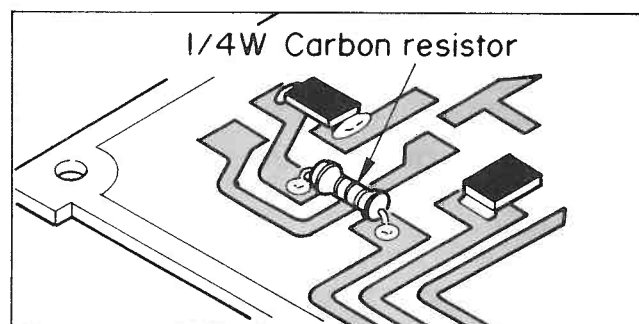


■ Discrete parts can be substitutionally mounted as shown in the figure on the right.

Mounting is also possible by passing the wires from the board front side (parts side) through the chip soldering hole (vent hole of registration part).

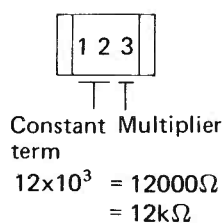
Substitute parts are as follows.

- Chip Metal Glaze Resistor
  - Carbon Resistor 1/4W ±5%
- Chip Ceramic Capacitor
  - Ceramic Capacitor 50V ±5%

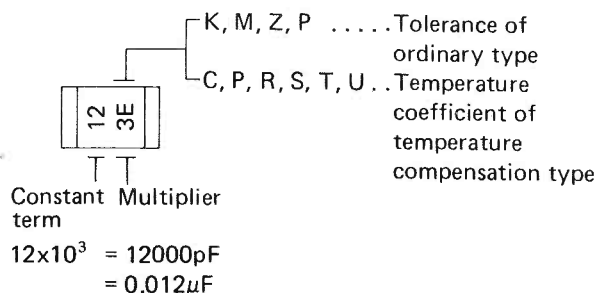


## ■ Decoding of chip parts constant terms

< Chip Metal Glaze Resistor >




< Chip Ceramic Capacitor >



## REPLACEMENT PARTS LIST INFORMATION

**\* UTILIZE THE INFORMATION ON THIS PAGE IN COMBINATION WITH THE REPLACEMENT PARTS LIST. WHEN ORDERING REPLACEMENT PARTS PLEASE SPECIFY THE PART NUMBER AS SHOWN IN THIS LIST INCLUDING PART NAME, AND MODEL NUMBER. COMPLETE INFORMATION WILL HELP EXPEDITE THE ORDER.**

## PRODUCT SAFETY NOTE

Components identified by the  symbol in the PARTS LIST and the shaded areas on the Schematic have special characteristics important to safety. Before replacing any of these components read carefully the **SAFETY PRECAUTION** on Page A of this Service Manual. DO NOT degrade the safety of the set through improper servicing.

## 1. ABBREVIATED WORD OF RESISTORS AND CAPACITORS

<b>RESISTOR</b>		<b>F R</b> :	Fusible Resistor	<b>BP E Cap.</b> :	Bi-Polar (or Non-Polar) Electrolytic Capacitor
<b>C R</b> :	Carbon Resistor	<b>CH MG R</b> :	Chip Metal Glaze Resistor	<b>MM Cap.</b> :	Metalized Mylar Capacitor
<b>Comp. R</b> :	Composition Resistor			<b>PP Cap.</b> :	Polypropylene Capacitor
<b>OM R</b> :	Oxide Metal Film Resistor	<b>CAPACITOR</b>		<b>MPP Cap.</b> :	Metalized PP Capacitor
<b>V R</b> :	Variable Resistor	<b>C Cap.</b> :	Ceramic Capacitor	<b>PS Cap.</b> :	Polystyrol Capacitor
<b>MF R</b> :	Metal Film Resistor	<b>M Cap.</b> :	Mylar Capacitor	<b>Tan. Cap.</b> :	Tantal Capacitor
<b>CMF R</b> :	Coating Metal Film Resistor	<b>E Cap.</b> :	Electrolytic Capacitor	<b>CH C Cap.</b> :	Chip Ceramic Capacitor
<b>UNF R</b> :	Unflammable Resistor				

2. FOLLOWING RESISTORS AND CAPACITORS OF STANDARD ELECTRICAL COMPONENTS ARE OMITTED FROM THIS PARTS LIST. EACH PART NUMBER OF THESE STANDARD REPLACEMENT COMPONENTS IS DEFINED AS FOLLOWS.

**Carbon Resistor (C R):** Lead form (  )

Rating	Part No.
$\frac{1}{4}W$	
$\frac{1}{2}W$	QRD121J-□□□

**Composition Resistor (Comp. R):** Lead form (  )

Rating	Part No.
$\frac{1}{2}W$	<p>Q R C 1 2 1 K - <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/></p> <p>Comp. R <math>\frac{1}{2}W</math> Tolerance Constant term Lead form</p>

**Mylar Capacitor (M Cap.):** Lead form (  )

Withstand Voltage	Part No.
50V	<p>Q F M 4 1 H K - □ □ □</p> <p>M Cap. └──┘ └──┘ └──┘ Constant term</p> <p>Lead form └──┘ 50V └──┘ Tolerance</p>
100V	Q F M 4 2 A K - □ □ □
200V	Q F M 4 2 D M - □ □ □

Ceramic Capacitor (C Cap.): Lead form (  )

Withstand Voltage	Parts No.
25V	<div style="text-align: center;"> <p>QCS 11 E - □ □ □</p> <p>C Cap. ——— Tolerance</p> <p>Lead form ——— Constant term</p> </div>
50V	QCS 11 H P - □ □ □
500V	QCS 12 H P - □ □ □

Electrolytic Capacitor (E Cap.): Lead form (  )

Withstand Voltage	Parts No.
6.3V	<p>QET 40JR - □ □ □</p> <p>E Cap. ——— 6.3V ——— Constant term</p> <p>Lead form ——— Tolerance</p>
10V	QET 41AR - □ □ □
16V	QET 41CR - □ □ □
25V	QET 41ER - □ □ □
50V	QET 41HR - □ □ □

**Chip Metal Glaze Resistor (CH MG R)**

Chip name	Chip No.	Substitutional Part No.
CH MG R		QRD141J- □□□ CR 1/4W ±5%

**Chip Ceramic Capacitor (CH C Cap)**

Chip name	Chip No.	Substitutional Part No.
CH C Cap	<p>QCS81HJ-□□□</p> <p>CH C Cap 50V Constant term</p> <p>Chip Tolerance</p>	<p>QCS11HJ-□□□</p> <p>C Cap 50V ±5%</p>

### 3. DECODING OF TOLERANCE AND CONSTANT TERM

## TOLERANCE

J:  $\pm 5\%$     K:  $\pm 10\%$     M:  $\pm 20\%$     N:  $\pm 30\%$     H:  $\begin{matrix} +50\% \\ -10\% \end{matrix}$

Z:  $\begin{matrix} +80\% \\ -20\% \end{matrix}$     P:  $\begin{matrix} +100\% \\ -0 \end{matrix}$     R:  $\begin{matrix} +30\% \\ -10\% \end{matrix}$     F:  $\pm 1\%$

CONSTANT TERM

• Carbon Resistor ( $\frac{1}{4}W$ ,  $\pm 5\%$  Tolerance)

QRD141J - ☐ ☐ ☐

CONSTANT TERM.

$\begin{array}{ccc} \square & \square & \square \\ \uparrow & \uparrow & \uparrow \\ 1 & R & 0 \rightarrow 1.0\Omega \\ \vdots & \vdots & \vdots \\ 9 & R & 7 \rightarrow 9.7\Omega \end{array}$

1 0  $\square \rightarrow 10\square$  means  $10 \times 10^{\square}$  ( $\Omega$ )

$$\begin{array}{ccc} \vdots & \vdots & \vdots \\ 8 & 2 & \square \end{array} \rightarrow 82\square \text{ means } 82 \times 10^{\square} (\Omega)$$

- **Ceramic Capacitor (50 Volts,  $\pm 5\%$  Tolerance)**

QCS11HJ -   

CONSTANT TERM.

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1 0  $\square \rightarrow 10\square$  means  $10 \times 10^{\square}$  (pF)

$\begin{matrix} : & : & : \\ 8 & 8 & \square \end{matrix} \rightarrow 88\square \text{ means } 88 \times 10^{\square} \text{ (pF)}$

## 2. FEATURES

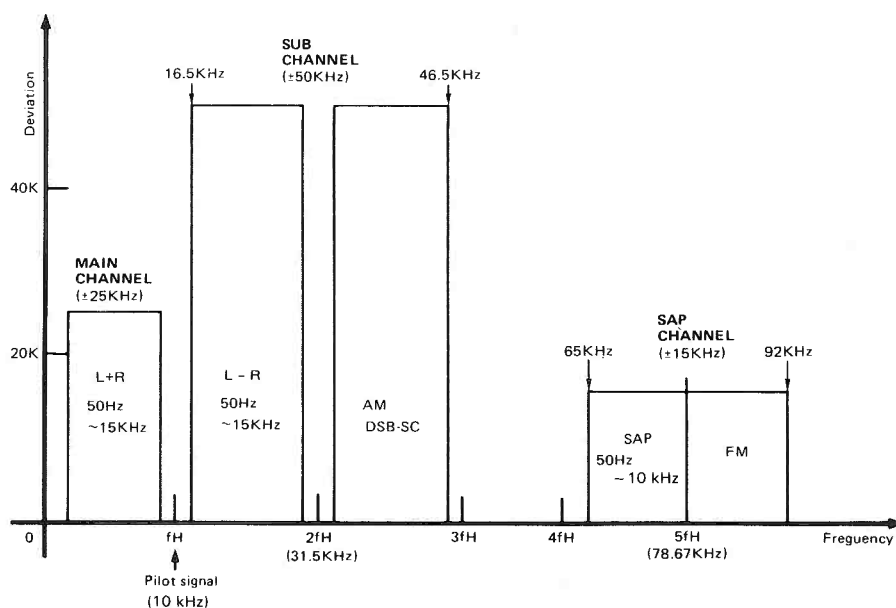
- Built-in MULTICHANNEL TV SOUND (M.T.S) circuit.
- Multifunctional remote control device that facilitate controls of channels, Choice channel (1 ~ 3), Auto. channel-up Video (1, 2, 3), sound volume, power, sleep timer, Main/Sap, VCR, and other functions.
- With two-way VHF antenna terminals A & B which facilitate use of CONVERTER (SCRAMBLE) OUTPUT terminal.
- With sleep timer for 10 minutes ~ 3 hours (increases by 10 minutes) by onscreen display.
- DISC switch that enables coping with video disc players.
- SKEW switch that corrects distortion of some part on the screen when playback a VCR.
- With external speaker terminals and external speaker select switch.
- PLL circuit permits receiving TV/CATV stations that total to maximum 142 channels.
- Built-in TV/CATV tuner.
- COMB FILTERS which improve detail.
- Built-in EE circuit for adjusting brightness automatically.
- With AUDIO/VIDEO INPUT terminals (1, 2 & 3 terminal).
- With AUDIO/VIDEO LINE OUT terminals.
- With VARIABLE AUDIO OUTPUT terminals.
- With ADDED-ERASE & SELECT/LOCK CIRCUIT.
- New type ONSCREEN display of channel, volume, video, sleep timer and MAIN/SAP.
- Adopts FULL SQUARE CRT which displays picture all over the screen.

## 3. OUTLINE

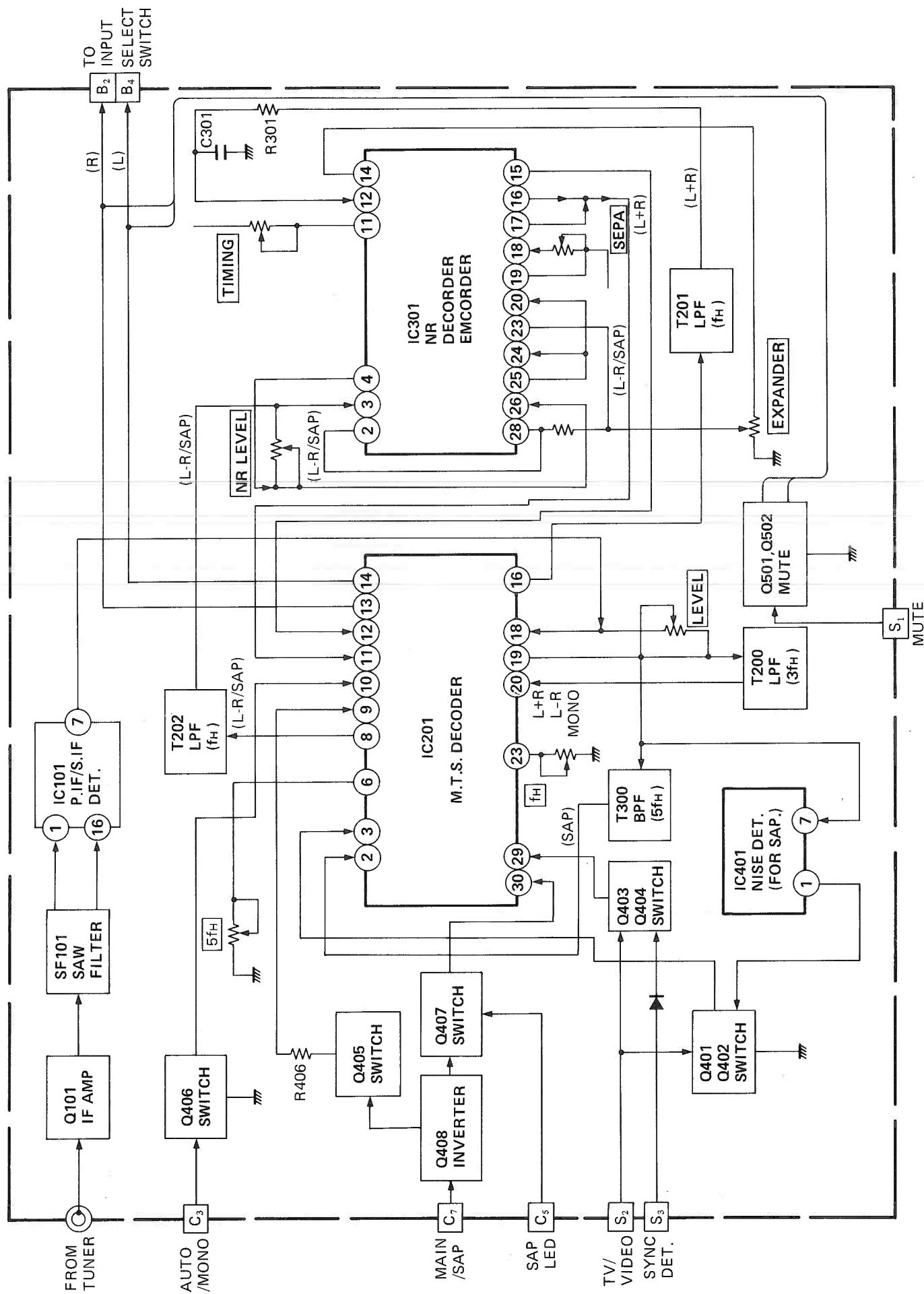
1. M.T.S. broadcasts transmit a conventional audio signal which has been multiplied into the M.T.S. signal.
2. The conventional MAIN channel audio signal has band from 50 Hz to 15 kHz. For multichannel broadcasts, the SUB channel and SAP channel signals are sent. The SUB audio signal has a band from 50 Hz to 15 kHz. The carrier ( $2f_H \cong 31.5 \text{ kHz}$ ), which is twice as large as the horizontal deflection frequency, is transmitted as DSB-SC signal that was modulated in amplitude of the SUB audio signal. The SAP audio signal has a band from 50 Hz to 10 kHz. The  $5f_H (\cong 78.67 \text{ kHz})$  carrier is frequency modulated by the SAP audio signal, then transmitted.

3. Pilot signals are transmitted in 15.734 kHz for stereophonic broadcasts. Because the DSB-SC signal has no carrier, the signal in the SUB channel is lost when there is no modulation. Thus, the pilot signal is transmitted during stereophonic broadcasts to distinguish it from the MONO signal.
4. The M.T.S. signals (MAIN, SUB, SAP, pilot signals) are sent after they are mixed and after the main sound carrier (4.5 MHz) is frequency modulated. This M.T.S. system is called the AM-FM system. AM shows the modulation of the SUB channel, and FM shows the modulation of the main sound carrier (4.5 MHz).

BTSC SYSTEM



### ■ BLOCK DIAGRAM



## ■ S.I.F.

The quasi parallel system is employed for M.T.S. broadcasting. SAW filter with different characteristics from the conventional TV is employed.

## ■ FLOW OF THE MAIN CHANNEL SIGNALS (MONO or L + R)

The M.T.S. signal, video-detected and audio-detected by IC101, is input to IC201 pin ⑱ and amplified, then output to pin ⑲. The M.T.S. signal output from pin ⑲ passes through T200LPF (3 fH) and becomes the main channel (L + R) and sub channel signals. Then they are input to IC201 pin ⑳, and output to pin ⑰ as a main channel signal (MONO or L + R).

Next, L + R pass through T201 LPF (fH) and the 75  $\mu$ S R301 and C301 deemphasis circuit. The signals are input to IC301 pin ⑫ and amplified, then output to pin ⑮ and input to IC201 pin ⑫ matrix circuit.

## ■ FLOW OF THE SUB CHANNEL SIGNAL (L - R)

From the main channel signal (L + R) and the L - R signal which passed through the T200LPF (3 fH), the L - R signal is the AM modulated DSB-SC signal. The DSB-SC signal which was input to IC201 pin ㉑, is detected for switching in IC201, and passes through MODE SW. It is then output to pin ⑧ as a sub channel signal (L - R).

The signal passes through T202 LPF (fH), and is input to IC301 pin ③ and amplified, then output to pin ④ and goes to pin ㉒. Passing through IC301's NR circuit, it is output to pin ⑰ and goes to IC201 pin ⑪ matrix circuit.

## ■ NR (NOISE REDUCTION) CIRCUIT

This TV employs the NR circuit. The SUB channel and SAP channel pass through the NR circuit. As shown in Figure 1, the signals are compressed when transmitted and expanded at the receiving side. This results in improvement of the S/N. The SUB channel signals are modulated in amplitude while the modulation factor is twofold in order to improve the S/N. The S/N is obtained after being expanded at the receiving side.

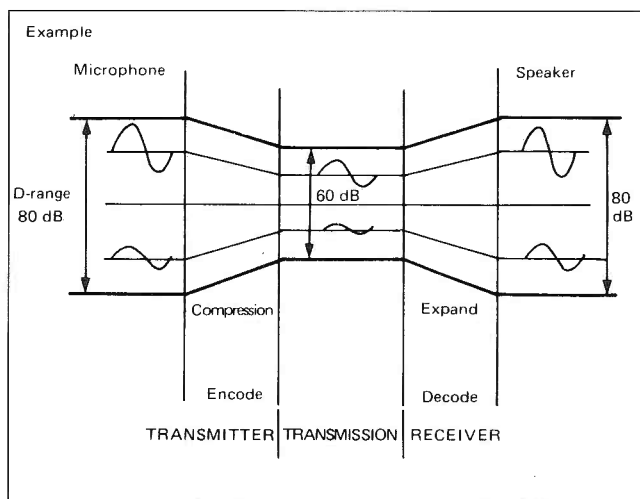


Fig. 1

## ■ FLOW OF THE SAP CHANNEL SIGNAL

### (Mainly for broadcasting in foreign language)

Among the signals output from IC201 pin ⑲, the carrier SAP channel signal passes through T300 BPF (5fH) and is input to IC201 pin ②. It is then PLL-FM detected and passes through MODE SW to be output to pin ⑧. Subsequent flow is the same as for the sub channel signal. The only difference is that the SAP signal which returns to IC201 pin ⑪ is not matrixed.

## ■ SWITCHING OPERATION

### 1. AUTO/MONO

This is controlled by IC201 ⑩.

When pin ⑩ is open, it is in AUTO mode. When Q406 is ON and pin ⑩ is connected to GND, it will be in MONO mode.

In AUTO mode, stereo broadcasts will be in stereo automatically.

### 2. MAIN/SAP

This is controlled by IC201 pin ⑨.

When pin ⑨ is opened by Q405, it will be in stereo or in main monoaural mode. When Q405 is turned ON and pin ⑨ is connected to GND through R406, it will be in SAP mode. However, if the SAP IND. is not lighted, it will not be in SAP mode even if it is switched to SAP.

### 3. TV/VIDEO

Q401 → Noise around 5fH is detected by IC401, and the presence of SAP signal is detected, when there is much noise, this switch stops the IC201's SAP detection circuit.

Q402 → When in video mode, this switch stops the SAP detection circuit.

Q403 → When in video mode, this switch turns off the stereo LED.

Q404 → The synchronous signal's detection signal is received, and when not synchronous, this switch turns off the stereo LED.

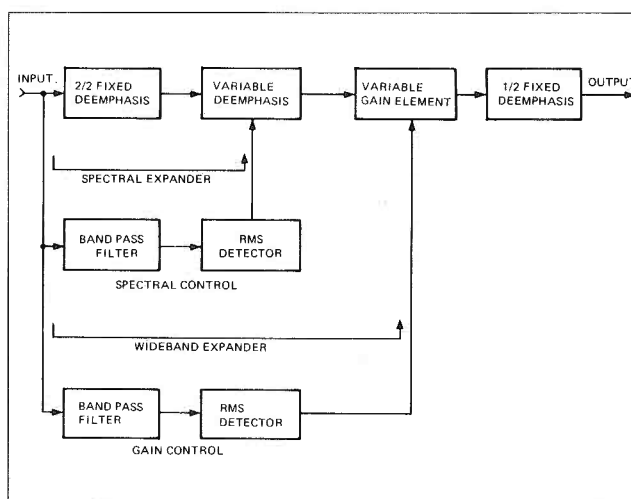
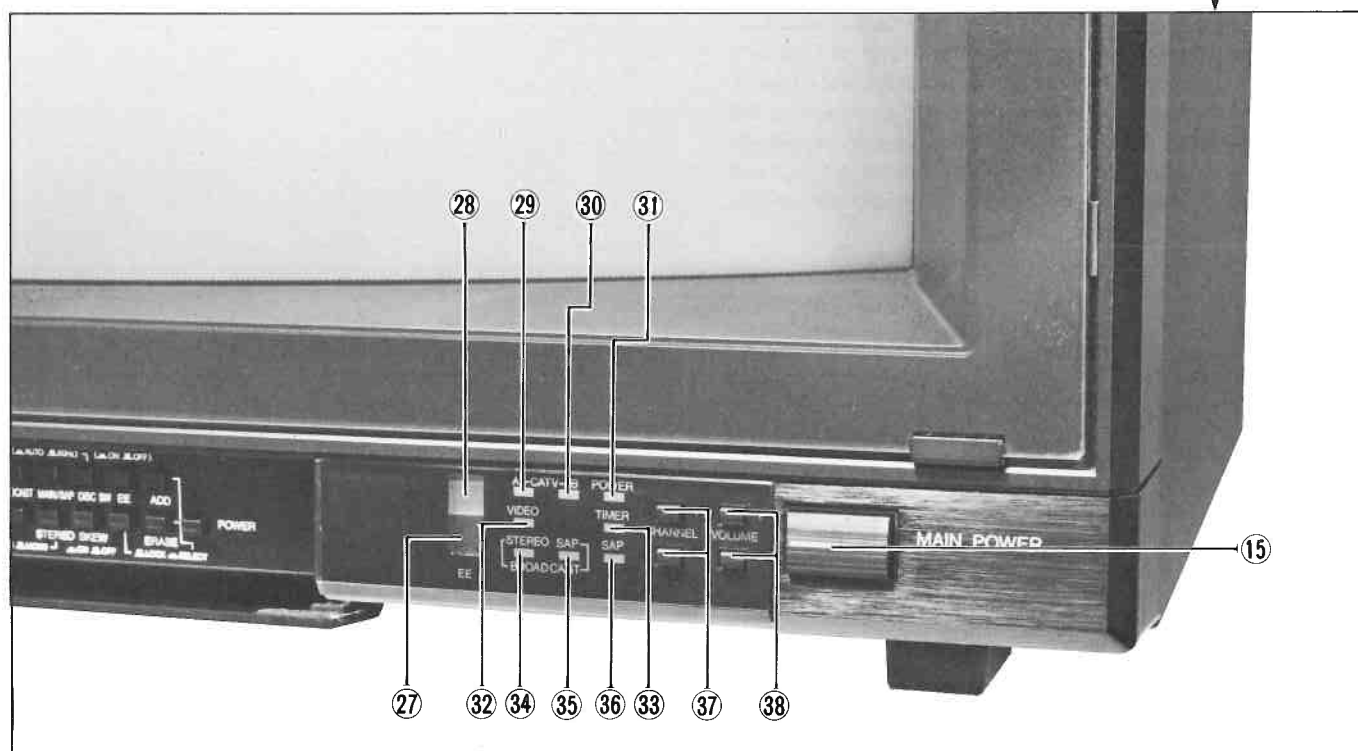
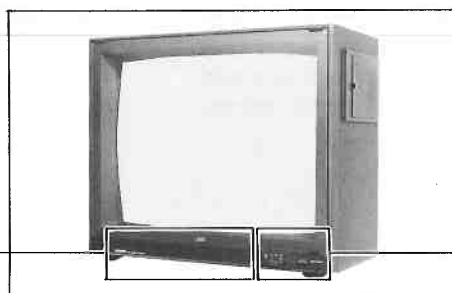
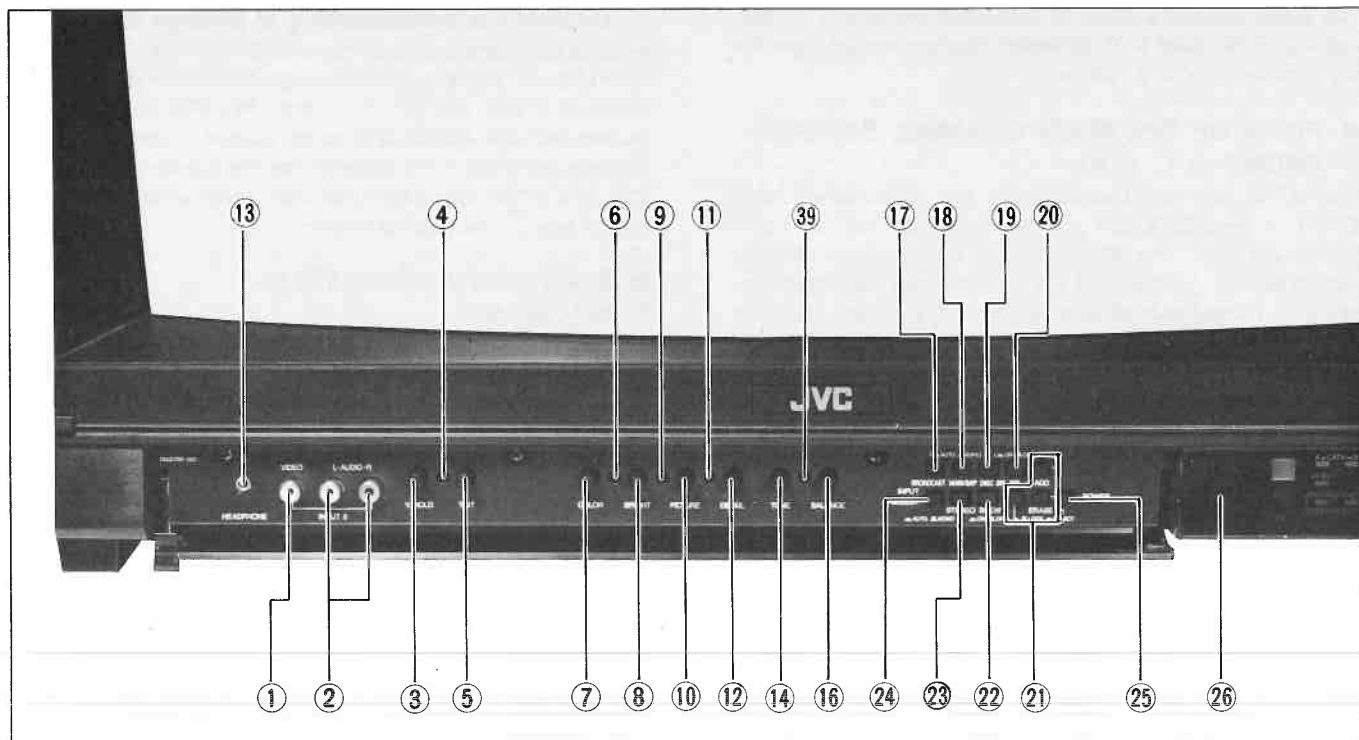


Fig. 2

## 4. FUNCTIONS



## ■ FRONT CONTROL & INDICATOR

- ① VIDEO INPUT JACK "3"
- ② AUDIO INPUT JACK (L & R) "3"
- ③ V. HOLD CONTROL KNOB
- ④ SUB TINT VR.
- ⑤ TINT CONTROL KNOB
- ⑥ SUB COLOR VR.
- ⑦ COLOR CONTROL KNOB
- ⑧ BRIGHTNESS CONTROL KNOB
- ⑨ SUB BRIGHT VR.
- ⑩ PICTURE CONTROL KNOB
- ⑪ SUB PICTURE VR.
- ⑫ DETAIL CONTROL KNOB
- ⑬ HEADPHONE JACK
- ⑭ TONE CONTROL KNOB
- ⑮ MAIN POWER BUTTON
- ⑯ BALANCE CONTROL KNOB
- ⑰ BROADCAST BUTTON  
Refer to "ANT. INPUT" on page 8.
- ⑱ MAIN/SAP BUTTON  
Press the MAIN/SAP BUTTON to select MAIN or SAP mode.
- ⑲ DISC SW BUTTON  
When a video disc with 50 Hz (PAL/SECAM) vertical synchronous frequency is under playback on a video disc player (VHD), this switch performs automatic frequency change over to prevent vertical turn of pictures.
- ⑳ EE ON-OFF BUTTON
- ㉑ LOCK/SELECT SWITCH AND ADD ERASE BUTTON
  - Lock/select switch
    1. When this switch is set to SELECT side, ADD and ERASE operations are possible.
    2. When this switch is set to LOCK, the added broadcasting stations except erased broadcasting stations are broadcasted.

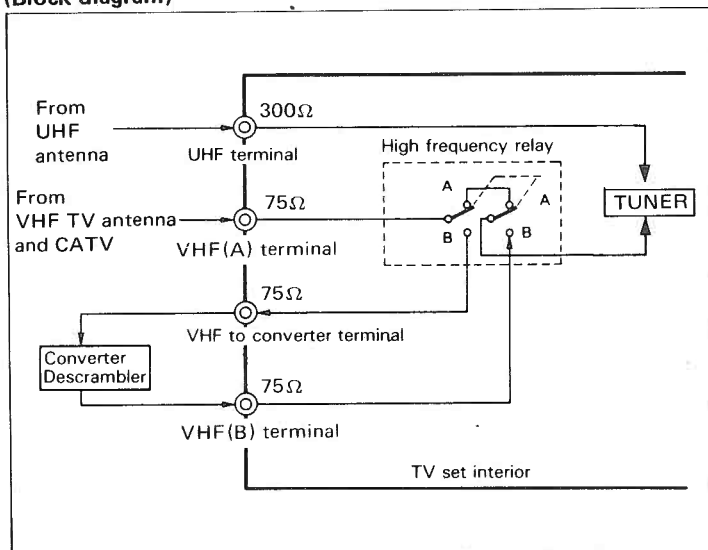
\* Set this switch to LOCK generally.
  - Add button  
Set LOCK/SELECT switch to SELECT side and choose broadcasting stations to be locked by pressing ADD button. Then CH. mode and "—" among CH. NOs are displayed by pressing ADD button.
  - Erase button  
When any broadcasting stations selected by setting LOCK/SELECT switch to SELECT side are unwanted, these stations are erased from locked channels. CH mode and "—" among CH. NOs disappear.
- ㉒ SKEW SW. BUTTON  
Compensates partially skewed screen display on the screen that appears during VCR playback, caused by tape deterioration or other factors.
- ㉓ STEREO BUTTON (AUTO ↔ MONO)  
When turning the switch to AUTO for stereo broadcasting, stereo signals are output at the L & R outputs. In case of MONO broadcasting, the mono signal is output at the L & R when either AUTO or MONO is turned on.  
\* Set this switch to AUTO generally.

- ㉔ INPUT SELECT BUTTON  
Press the INPUT SELECT button to select INPUT "1", "2", or "3" mode, and "TV" mode. INPUT terminal "3" on the front panel is bridged to INPUT terminal "3" on the rear panel providing convenience in tape dubbing or edition.  
\* If connection is made to the video input terminals on the front and rear panels, the 75  $\Omega$  terminal resistance is automatically switched.
- ㉕ POWER BUTTON  
Press the power button while the unit is in stand by mode. Then, power is supplied and the TV set operates. Press the power button again to turn the power off. The unit is set to stand by mode.
- ㉖ REMOTE CONTROL SENSOR  
Refer to "REMOTE CONTROL OPERATION RANGE" on page 9.
- ㉗ EE CONTROL SENSOR
- ㉘ EE INDICATOR
- ㉙ CATV A (CA) INDICATOR
- ㉚ CATV B (CB) INDICATOR
- ㉛ MAIN POWER INDICATOR
- ㉜ VIDEO INDICATOR  
Lights when the INPUT select button or Video (remote) button is pressed to set to VIDEO mode.
- ㉝ SLEEP TIMER INDICATOR
- ㉞ STEREO BROADCAST INDICATOR  
When a stereo broadcast is received, the STEREO BROADCAST INDICATOR lights.
- ㉟ SAP. BROADCAST INDICATOR  
When a SAP broadcast is received, the SAP BROADCAST INDICATOR lights.  
\* If no SAP signal is fed, the SAP BROADCAST INDICATOR does not go on.
- ㊱ SAP. INDICATOR  
Lights when the MAIN/SAP button is pressed when the SAP. BROADCAST INDICATOR is lit.
- ㊲ CHANNEL UP-DOWN BUTTON
- ㊳ VOLUME UP-DOWN BUTTON
- ㊴ H. CENTER

## ■ REAR TERMINAL

### ● ANTENNA INPUT

(Block diagram)



The diagram of the antenna input terminal is shown in the figure. Input selections of CH mode, CA Mode & CB Mode are made with the BROADCAST BUTTON.

#### ● CH Mode: TV (VHF/UHF) Mode

When set to CH Mode, input signal is input from VHF A terminal and UHF terminal.

- \* Only input signal from VHF TV antenna is input into VHF A terminal. High frequency relay in the figure turns to A side.

#### ● CA Mode: CATV (CATV A) Mode

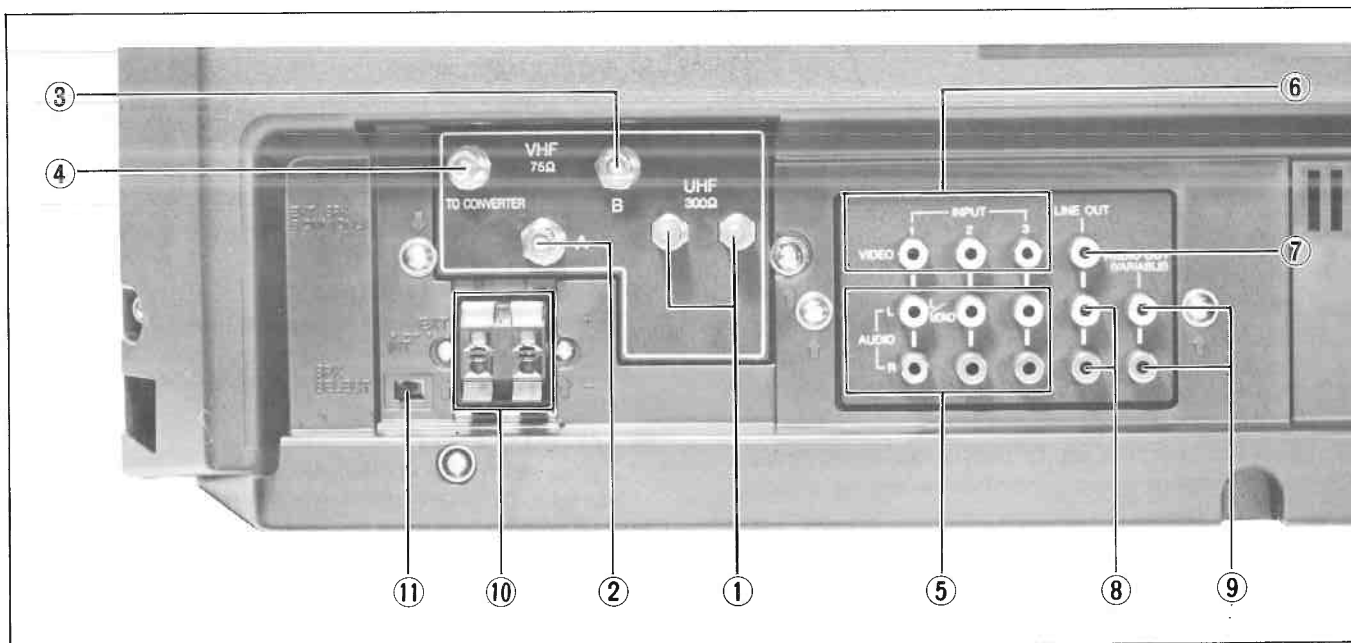
When set to CA Mode, input signal is input from VHF A terminal.

- \* Only input signal from CATV is input into VHF A terminal.

#### ● CB Mode: CATV scramble (CATV B) Mode

When set to CB Mode, input signal is input from VHF B terminal through converter descrambler.

- \* Input signal from CATV is input into VHF A terminal. High frequency relay in the figure turns to B side. Input signal from VHF A terminal is output from "TO CONVERTER" terminal, and is input into VHF B terminal through converter descrambler.



#### ① UHF TERMINAL

#### ② VHF "A" TERMINAL

#### ③ TO CONVERTER TERMINAL

#### ④ VHF "B" TERMINAL

#### ⑤ AUDIO INPUT (L & R) TERMINAL

The terminal for monitoring by connecting the audio output from a video camera, VCR or the equipment.

- \* External input terminal "3" on the front panel is bridged to external input terminal "3" on the rear panel.

#### ⑥ VIDEO INPUT TERMINAL (1, 2 & 3)

The terminal for monitoring by connecting the video output from a video camera, VCR or other equipment.

- \* External input terminal "3" on the front panel is bridged to external input terminal "3" on the rear panel providing convenience in tape dubbing or edition.

- \* If connection is made to the video input terminals on the front and rear panels, the 75 Ω terminal resistance is automatically switched.

#### ⑦ VIDEO LINE OUTPUT TERMINAL

#### ⑧ AUDIO LINE OUTPUT TERMINAL

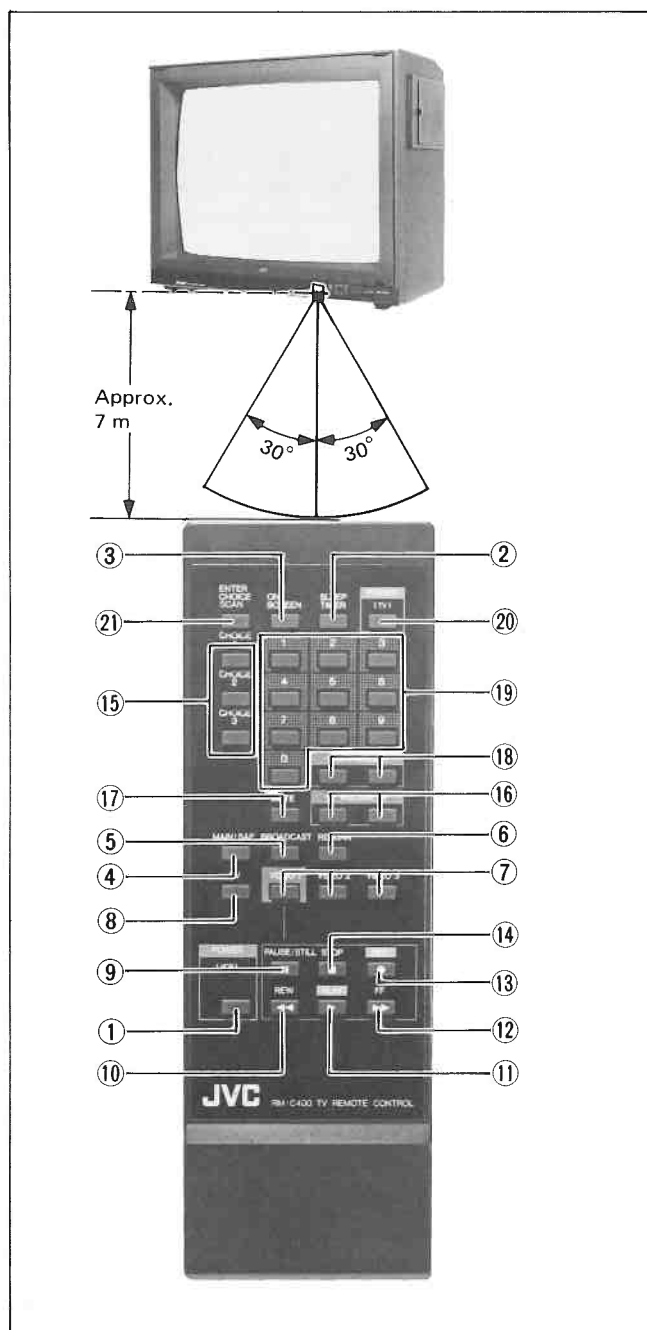
#### ⑨ AUDIO OUTPUT (Variable) TERMINAL

#### ⑩ EXT SPK TERMINAL

#### ⑪ SPK SELECT SWITCH KNOB



## ■ REMOTE CONTROL UNIT



### ● Remote Control Operation Range

The operation range of the remote control unit extends about 7 m from the remote control sensor within an angle of 30° from the center line.

- \* The remote control unit can be operated only when the MAIN POWER switch is depressed.

#### ① POWER (VCR) OFF/ON BUTTON

When the ON side of the button is pressed, power is supplied to the VCR, when the OFF side of the button is pressed, the power is shut off.

#### ② SLEEP TIMER BUTTON

Used to set the sleep timer. Each time this button is pressed, the sleep timer time increases by 10 minutes.

#### ③ ON SCREEN BUTTON

When the ON SCREEN BUTTON is pressed, screen display is obtained.

Press it again to turn the display OFF.

#### ④ MAIN/SAP BUTTON

Press the MAIN/SAP BUTTON to select MAIN or SAP mode.

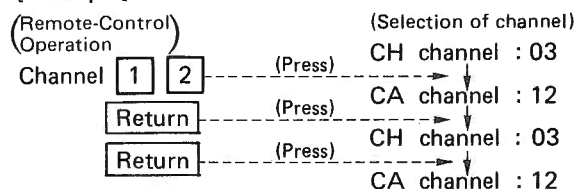
#### ⑤ BROADCAST BUTTON

Each time this button is pressed in TV mode, the BROADCAST mode (CH, CA & CB mode) is changed correspondingly.

#### ⑥ RETURN BUTTON

The return button on remote control device permits receiving pictures from the channel received before.

[Example]



#### ⑦ VIDEO (1 ~ 3) BUTTON

#### ⑧ TV BUTTON

#### ⑨ PAUSE/STILL (■ ■) BUTTON

#### ⑩ REW (◀◀) BUTTON

#### ⑪ PLAY (▶) BUTTON

#### ⑫ FF (▶▶) BUTTON

#### ⑬ REC (●) BUTTON

#### ⑭ STOP (■) BUTTON

**⑮ CHOICE BUTTON (1, 2 & 3)****● How to set choice channel**

1. Select channels liked to set.
2. Press the ENTER CHOICE SCAN button.  
Then the present channel and "ENTER" are displayed ON-SCREEN to show an entry mode (right figure). This continues for about five seconds.

CH-13  
ENTER

Entry mode

3. Press the CHOICE BUTTON (CHOICE 1 ~ 3) while "ENTER" is displayed. Then the CHOICE channel number set is displayed in the center of "ENTER", and [2] displayed to show a finished set (right figure).

CH-13  
[2]

4. Finishing set

In the example, CH-13 has been set for CHOICE 2.

**● How to use choice channel**

The CHOICE channel button on remote-control device facilitates receiving one's channels set (memorized) for CHOICE channels beforehand.

[Example]

\* Choice channel setting (memorized)

CHOICE: 1 ← (Set) CH. channel : 02

CHOICE: 2 ← (Set) CA. channel : 11

CHOICE: 3 ← (Set) CB. channel : 03



\* Choice channel operation by remote-control.

(Remote-control Operation)	(Selection of channel)
CHOICE: 1 — (Push)	CA. channel : 04
CHOICE: 2 — (Push)	CH. channel : 02
CHOICE: 3 — (Push)	CA. channel : 11
	CB. channel : 03

**⑯ VOLUME UP(+) – DOWN(–) BUTTON**

Digits indicating the sound volume (00 ↔ 50) are displayed on the screen for numerical checking of the volume.

**⑰ MUTE BUTTON**

Press the MUTE button. Then, the volume indication digits become "00" and the sound disappears while the button is pressed. Press the button again to obtain the sound again (Reset).

**⑱ CHANNEL UP(+) – DOWN(–) BUTTON**

At LOCK position, only the set of ADD channel is received. At SELECT, all channels are sequentially received.

**● Auto channel up (scan) operation**

While ENTER display "ENTER" is on-screen by pressing ENTER button, AUTO CHANNEL UP operation is done by pressing CHANNEL UP (+) button. This button channels up all the added channels one after another in one of CH/CA/CB modes. When all CHANNEL UP operation is over, ENTER display "STOP" shows an end.

\* If necessary to stop AUTO CHANNEL UP operation, it stops by pressing other button than CHANNEL UP button (+) and VCR operation button.

**⑲ DIRECT CHANNEL BUTTON****⑳ POWER (TV) BUTTON****㉑ ENTER CHOICE SCAN BUTTON**

Press this button to carry out AUTO CH. UP operation or set the CHOICE CHANNEL.

**● OPERABLE VCRs**

A Type VTR (VCR)	JVC HR-D725U JVC HR-D130U JVC HR-D150U	The following functions can be remotely controlled.
B Type VTR (VCR)	JVC HR-D225U JVC HR-D220U JVC HR-D120U JVC HR-D235U	The following functions, operation (TV/VIDEO-1 button), can be remotely controlled.

\* For detailed operation, refer to the VTR (VCR) Instruction Book & Service Manual.

## 5. HOW TO REMOVE FOR SERVICE

### ■ REMOVING THE REAR COVER

1. Unplug the power supply cord and unscrew the seven screws (A) & (B) shown in Fig. 5-1.

### ■ REMOVING THE CHASSIS BOARD

After removing the rear cover,

1. Unscrew the three screws (A) shown in Fig. 5-2.
  2. Unscrew the screw (A) shown in Fig. 5-3.
  3. Then remove the anode wire, connectors and other wires (if necessary) from the wire clamp.
  4. Withdraw the chassis board backward along the rail.
- \* When conducting a check with power supplied, be sure to confirm that the CRT earth wire is connected to the CRT socket board.

### ■ REMOVING THE M.T.S. BOARD

1. Unscrew the two screws (A) shown in Fig. 5-4.
2. Pull out the M.T.S. Board backward.

### ■ WIRE CLAMPING AND TYING BAND

1. Be sure to clamp the wire.
2. Never remove the tying band used for wire clamping. Should it be inadvertently removed, be sure to clamp the wire again, using insulating material.

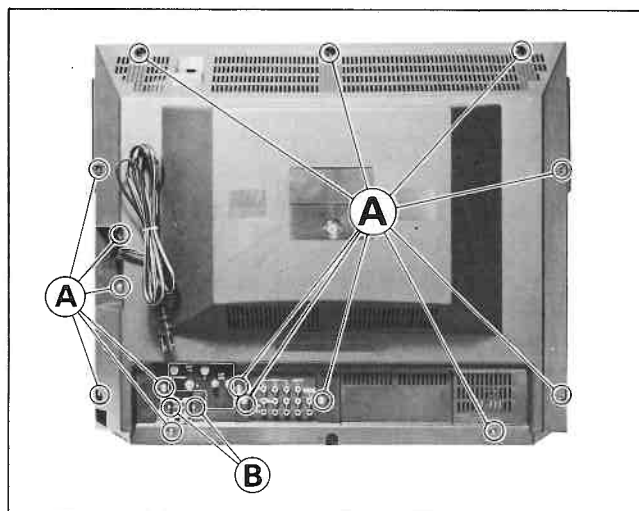


Fig. 5-1

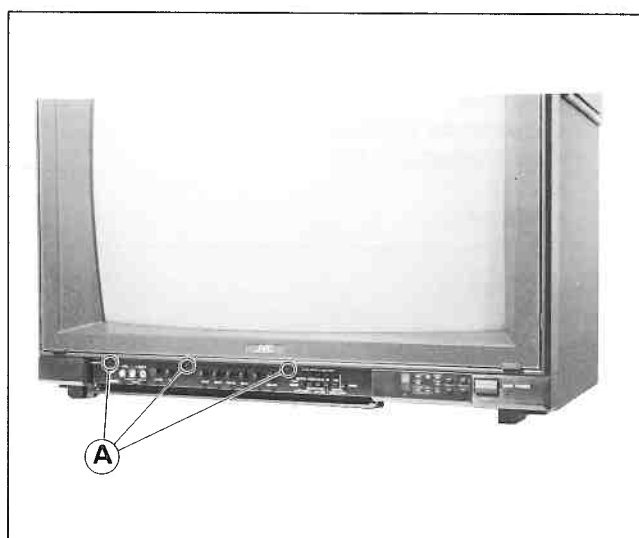


Fig. 5-2

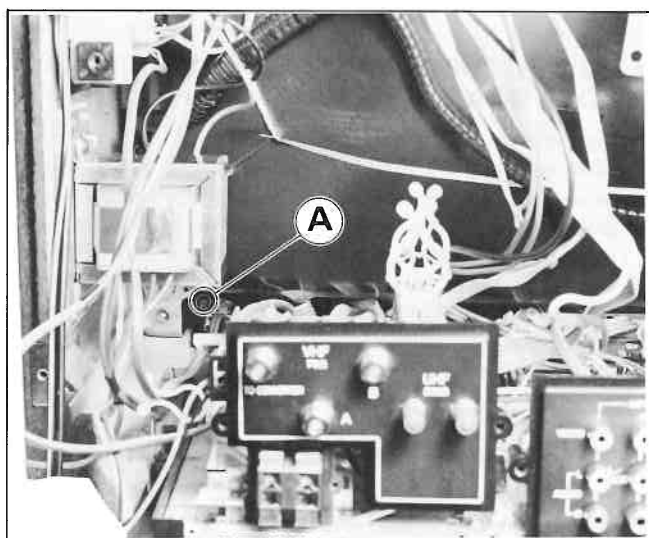


Fig. 5-3

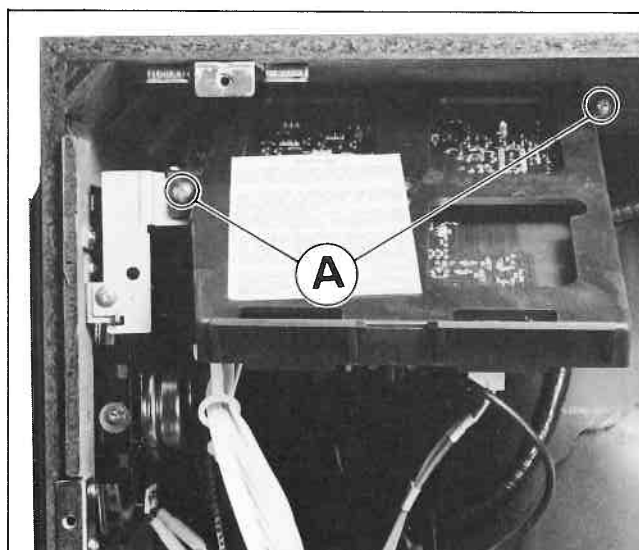


Fig. 5-4

## 6. SERVICE ADJUSTMENTS

REGARDING GENERAL OR CHROMA ADJUSTMENTS, REFER TO THE APPENDED NTSC.  
AS TO THE FOLLOWING ITEMS, OBSERVE THE RESPECTIVE INSTRUCTIONS GIVEN HEREIN.  
M.T.S. ADJUSTMENT, REFER TO THE APPENDED "MULTI".

As for the test points and respective volume adjusting positions, refer to the schematic diagram and the section on "alignment locations" appearing in the same diagram.

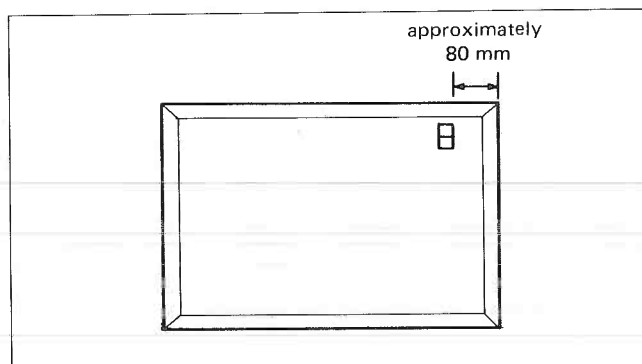
### ■ NOTICE FOR APPENDED "NTSC" ADJUSTMENT

As to the following adjustment, adjust by referring to appended NTSC adjustment.

- SAFETY PRECAUTION
- PURITY, CONVERGENCE AND WHITE BALANCE
- B<sub>1</sub> VOLTAGE
- SUB PICTURE
- VERTICAL HEIGHT & V. LIN.
- NOISE
- COMB FILTER
- HORIZONTAL OSCILLATOR
- SUB COLOR & SUB TINT
- BLACK LEVEL & SUB BRIGHT
- FOCUS
- VERTICAL CENTER
- HORIZONTAL LINE
- V. IF
- RF. AFC

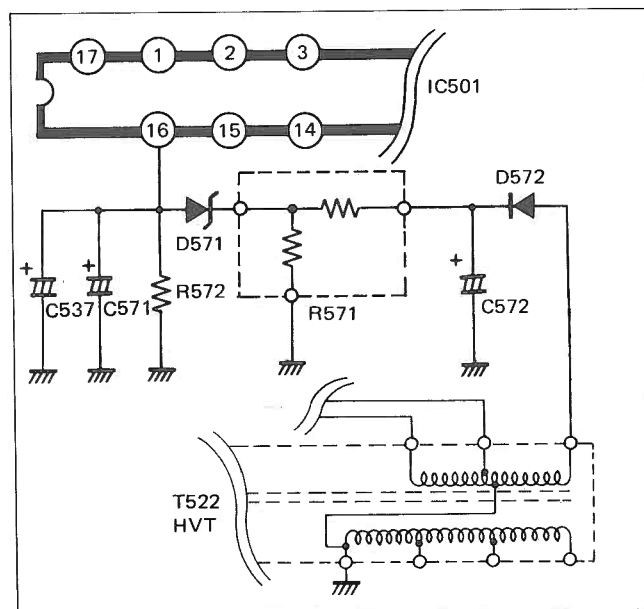
### ■ ON-SCREEN

1. Display characters on the screen.
2. As shown in the figure, adjust the characters positions with the CLK VR (ON-SCREEN ADJ. VR).
3. Confirm that the characters are also located approximately at the same positions on other channels.



### ● HOW TO CHECK THE HIGH VOLTAGE HOLD DOWN CIRCUIT.

1. High voltage hold down circuit.  
After repair of the high voltage hold down circuit shown below, this circuit shall be checked to operate correctly.
2. Checking method of the high voltage hold down circuit.
  - (1) Make the short circuiting across the R01, 180  $\Omega$  30 W UNF resistor (Refer to "ALIGNMENT DIAGRAM of SCHEMATIC DIAGRAM) under normal operating condition.
  - (2) Confirm the picture goes out.



# 7. REPLACEMENT PARTS LIST

## ■ MAIN REPLACEMENT PARTS LIST

SYMBOL NO.	△	PART NO.	PART NAME	REMARK	SYMBOL NO.	△	PART NO.	PART NAME	REMARK
<b>CRT TUNER</b>					<b>DIODE</b>				
V01	△	M66JHX30X	Picture Tube		D1001		MA4068(L)-Y	Zener Diode	
L01	△	CJ39694-A0A	Deg. Coil	or CJ39694-00B (x4)	1605		MA4130-Y	"	
		CE40764-00A	Wedge Ass'y		1701		LN0204GP3-(L)	LED	EE, Indicator
		CE40082-00A	VM Magnet		1702		GL-9PG26	"	CATV,(A) Indicator
DY01	△	CE20059-B0A-KD	Def. Yoke Ass'y		1703		"	"	CATV,(B) "
UV1001	△	AN7772EP-A03	CATV Tuner	TV/CATV Tuner	1704		GL-9PR26	"	Power Indicator
					1705		GL-9PG26	"	Video Indicator
					1707		GL-9HS2	"	Sleep Timer
									Indicator
					1708		GL-9PR26	"	Stereo Indicator
					1709		GL-9PG26	"	SAP Indicator
					1710		"	"	MAIN/SAP Ind.
<b>TRANSFORMER</b>					1752		MA4270(M)-Y	Zener Diode	
T01	△	CE30104-00A-KD	Power Transformer		1781		PD49PI	Photo Diode	
522	△	CE40861-00A	H. V Transformer		1904		RD20+(B3)	Zener Diode	
2521	△	CE40361-00E	Drive Transformer		1912		MA4120(M)-Y	"	
					1907		U05-B	Si. Diode	Recti.
					~ 10				
					2273		MA4110(M)	Zener Diode	
					2401		" -Y	"	
					2501		" -Y	"	
					~ 4				
					2571	△	HZ7B2LV1	"	
					2865		RD6.8JS-Y	"	
					9001	△	RM2C	Si. Diode	Recti.
					~ 4				
					9101		RD11E(B)	Zener Diode	
<b>IC</b>					<b>VARIABLE RESISTOR</b>				
IC 01		STR3225	IC	Power Regulator	R1113		CEX40197-014	VR (Noise)	10kΩ
					1726		" -023	" (CLK)	2kΩ
1001		μPD1709C-538	"	PII. Micro Processor	2001		QVAZ003-C001A	" (Color, Sub-Color, Picture, Sub- Picture, Bright, Sub-Bright, Detail, Tone, Balance)	
1031		LA7910	"	Band Switch					
1032		AN7805	"	Regulator	2002		QVAZ004-C001A	" (V. Hold, Sub Tint, Tint)	
1033		μPC574J(V)	Zener Diode IC		2212		CEX40358-471	" (Comb. Filter)	470Ω
1101		TA7607AP	IC	P.I.F V. DET	2258		CEX40197-053	" (Auto Black)	5kΩ
1601		TA7630P	"	VOL. Tone Control	2506		CEX40202-053	" (H. Freq.)	"
1602	△	AN7168	"	Audio Amp (L,R)	3113		" -053	" (R. Cut Off)	"
1721		MN14833JTY	"	(Sensor Control) (Micro Processor)	3114		" -053	" (G. Cut Off)	"
					3115		" -053	" (B. Cut Off)	"
1751		MN1228	"	Memory	3119		" -022	" (R. Drive)	200Ω
1761		TA78L005AP	"	Regulator	3120		" -022	" (G. Drive)	"
1781		μPC1373H	"	Pre Amp.	6202		" -015	" (Level)	100kΩ
1791		μPD4049UBC	"	Inverter	6211		" -014	" (fH)	10kΩ
1801		TA7717AP	"	Input Select Switch	6236		" -053	" (5fH)	5kΩ
1901		TA78012AP	"	Regulator	6312		" -014	" (NR Level)	10kΩ
2201		AN5322K	"	Picture Chroma	6322		" -024	" (Sapa.)	20kΩ
2301		TA78012AP	"	Regulator	6327		" -023	" (Expander)	2kΩ
2421	△	AN5521	"	V. Out	6341		" -054	" (Timing)	50kΩ
2451		AN5560	"	V. Freq. Det.	2421		QVPA8012-201M	Trim R (V. Lin.)	
2501		HA11423	"	SYNC SEPA, AFC, H.V. Out	2423		" -201M	" (V. Height)	
2801		M51320P	"	Video Select					
2804		AN5352	"	TV Switch					
6101		TA8603P	"	S. IF, P. IF					
6201		μPC1480CA	"	MTS Decoder					
6301		μPC1481CA	"	NR, Decoder					
				Emcorder					
6401		μPC1373H	"	Noise Detector					
<b>TRANSISTOR</b>					<b>CAPACITOR</b>				
Q1003		2SK105F	FET	Active Filter	C2323		QAT3110-300A	Trimmer Cap.	Color Sync.
1901	△	2SC1265(Q,P)	Transistor	Regulator					
1911	△	2SD1133	"	"					
2522	△	2SD1556	Si. Transistor	H. Out					
3104		2SC2068	"	R. Out					
3105		"	"	G. Out					
3106		"	"	B. Out					
					<b>FUSE</b>				
					F 1901	△	QMF53U1-2R5S	Fuse	2.5A
					9001	△	QMF66U1-4R0S	"	4A
					9002	△	QMF53U1-1R25S	"	1.25A

S YMBOL		PART NO.	PART NAME	REMARK	S YMBOL		PART NO.	PART NAME	REMARK
SWITCHES									
S01	A	QSP4C11-C01	Push Switch	Main Power			CM42759-001	Select Knob	CH. $\pm$ , Vol. $\pm$
1601		QSS1F22-C02	Slide Switch	Speaker Select			CM43174-001	"	Erase, Power, ADD
1701		QSP2C22-C01	Push Switch	Disk			CM43175-001	"	(Main/SAP, Broad-
1702		" -C01	"	EE					cast, Input Select)
1703		" -C01	"	Stereo					
1704		" -C01	"	Skew					
1705		" -C01	"	Select/Lock					
1706		QSP1A11-C02	"	Braodcast					
1707		" -C02	"	MAIN/SAP					
1708		" -C02	"	ADD					
1709		" -C02	"	Input Select					
1710		" -C02	"	Erase					
1711		" -C02	"	Power					
1712		" -C03	"	CH.(+)					
1713		" -C03	"	CH.-(-)					
1714		" -C03	"	VOL.(+)					
1715		" -C03	"	VOL.-(-)					
2201		QSL4A13-C02	Lever Switch	Service Switch					
2401		" -C02	"	V. Center					
KNOB									
		CM42757-002	Knob	Main Power					
		CM42758-003	"	(Select/Lock, Disk, EE, Stereo, Skew)					
OTHERS									
							CM10391-AOK-KD	Front Panel Ass'y	
							OMP1460-244K	Power Cord	
LF 9001							CE40248-00B	Line Filter	
9002							CE40719-00B	"	
X1001							CE40842-001	Crystal	
SF1101							CE40050-204	SAW Filter	
DL2201							CE40873-001	1H Delay Line	
2202							CE40876-A01	Delay Line	
2203							CEx40215-001	"	
X2301							A76351-D	X-TAL	
SF6101							CE41031-201	SAW Filter	
RY9001							CE40134-001	Relay	
TH9001							A75511	Posistor	
SP01_02							ESA12P520SG-KD	Speaker	

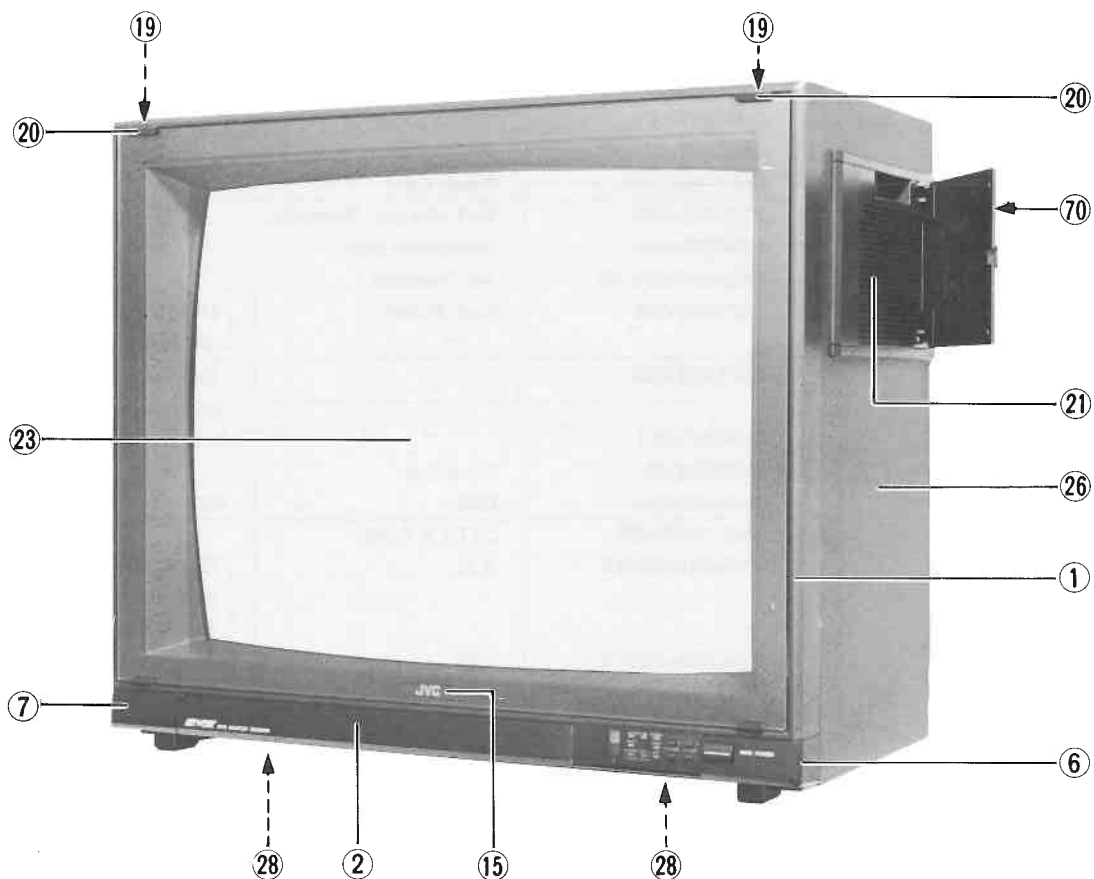
## ■ CHASSIS &amp; CABINET PARTS LIST

\* : LOCAL PARTS

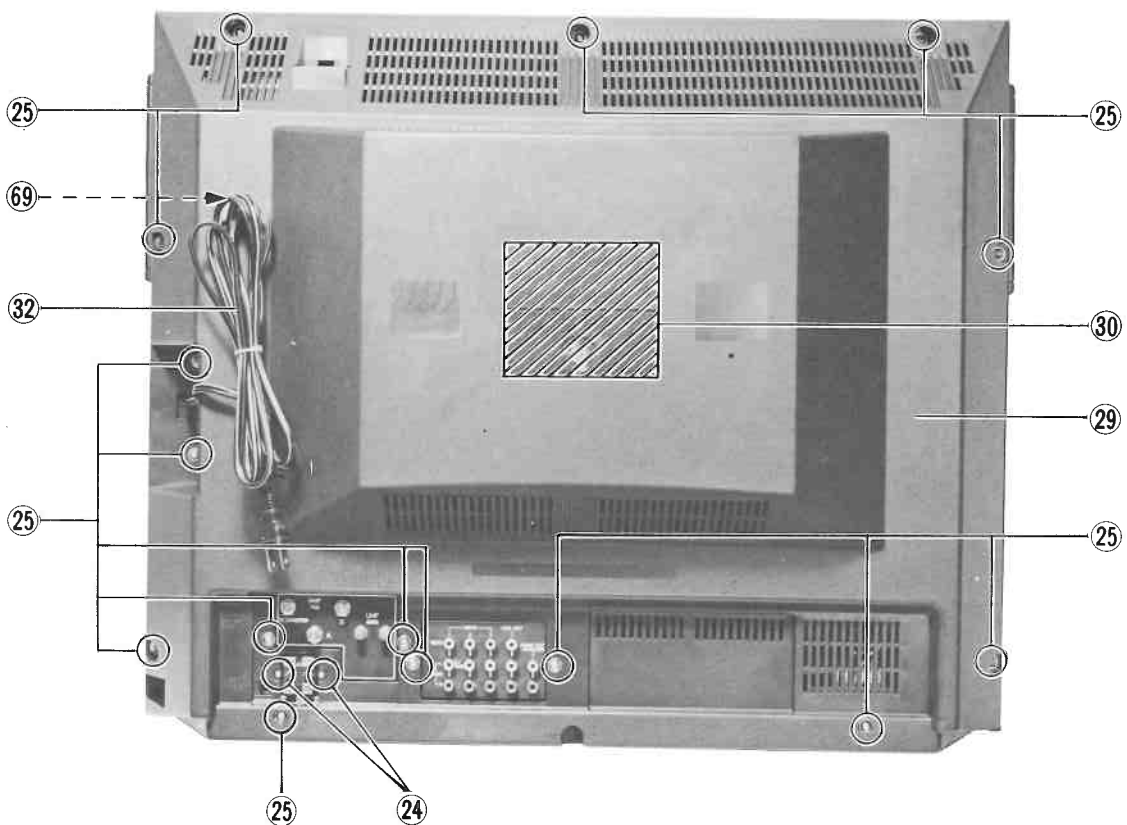
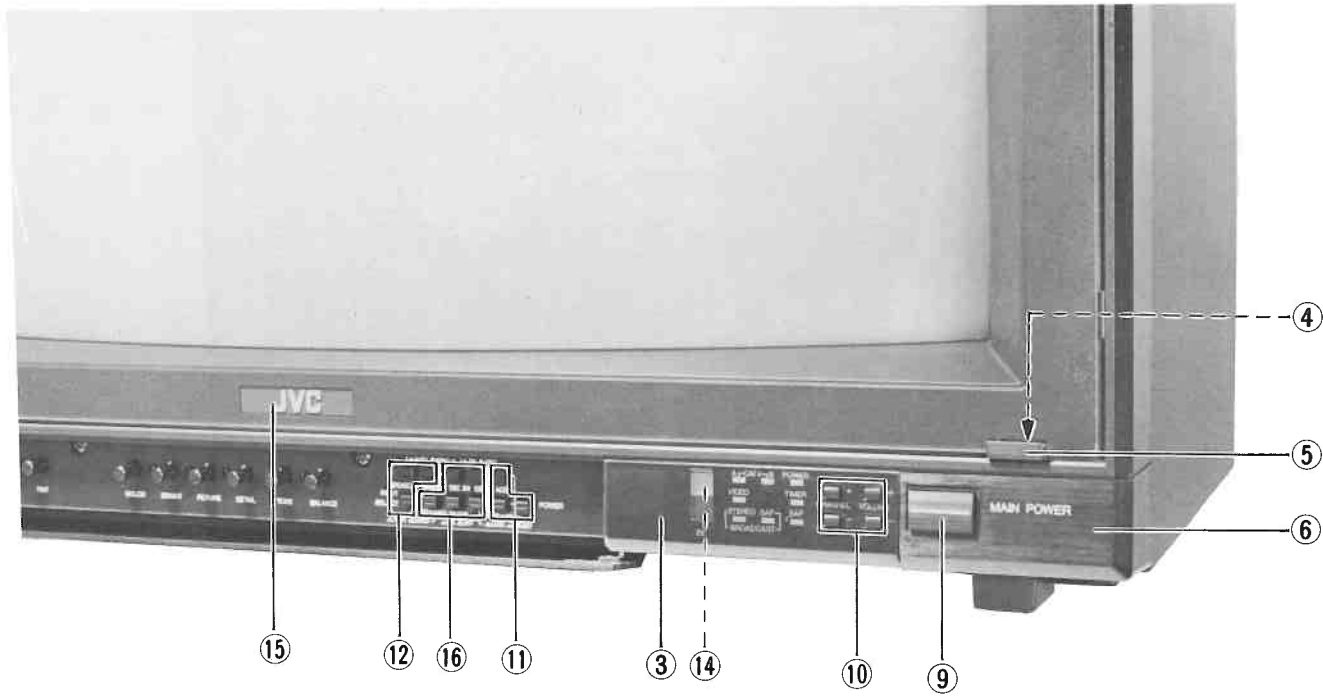
VIEW NO.	SYMBOL NO.	*	△	PART NO.	PART NAME	REMARK
1				CM10391-A0K-KD	Front Panel Ass'y	
2				CM31428-00D	Control Door Ass'y	Within Front Panel Ass'y
3				CM31381-00C	Window Ass'y	"
4				CM43007-001	Glass Bracket	(x2) "
5				CM41723-A01	Glass Holder	(x2) "
6				CM31426-003	Ornament Plate	(R) "
7				CM31427-A01	"	(L) "
8				CM30861-021	Spring (Power Knob)	"
9				CM42757-002	Power Knob	Main Power "
10				CM42759-001	Select Knob	(Ch. $\pm$ , Vol. $\pm$ ) "
11				CM43174-001	"	(Erase Power, ) "
12				CM43175-001	"	(ADD )
13				CM20785-A02	Operation Sheet	(Main/SAP, ) (Broadcast, Input Select )
14				CM42851-001	EE Cap.	Within Front Panel Ass'y
15				CM42072-002	Brand Mark	"
16				CM42758-003	Knob	(Select/Lock, Disk, )
17	IC01		△	STR3225	IC	(EE, Stereo, Skew ) Power Regulator
18	D01		△	1S1887A	Si. Diode	
19				CM41412-001	Glass Bracket (Inner)	(x2)
20				CM41863-001	Glass Cover (Outside)	
21				CN30076-B0A-KD	Speaker Grill Ass'y	(R)
22				CN30077-B0A-KD	"	(L)
23				CM20104-B25-KD	Glass	
24				SBSB3012Z	Tap Screw	(x2) SPK Terminal
25				GBSB4030Z	"	(x15) Rear Cover
26		*		CN10212-00A	Wood Cabinet	
27	S1712 ~ 15			QSP1A11-C03	Push Switch	CH ( $\pm$ ), VOL ( $\pm$ )
28				CN40054-00A	Foot Ass'y	(x4)
29				CM00016-004-KD	Rear Cover	
30		*		CM20920-001	Rating Label	
31			△	CM20697-00A-V0	ANT. Terminal Ass'y	
32			△	QMP1460-244K	Power Cord	
33	J1601			CE40805-002	EXT. Speaker Terminal	
34	J2601			AX49607-004	Headphone Jack	
35	J1801			CM31318-00B-V0	AV. Terminal	
36	S1701 ~ 5			QSP2C22-C02	Push Switch	(Disk, EE, Stereo, ) (Skew, Select/Lock )
37	S1706 ~ 11			QSP1A11-C02	"	(Broadcast, Main/SAP, ADD, ) (Input Select, Erase, Power )
38	S01		△	QSP4C11-C01	"	Main Power
39				CM43336-001	Knob Cap.	"
40	PC1701			CE40538-00A	CDS	EE
41	VU1001		△	AN7772EP-A03	CATV E Tuner	
42	R2001			QVAZ003-C001A	V R	(Color, Sub Color, Picture, ) (Sub Picture, Bright, Sub Bright, ) (Detail, Tone, Balance )
43	R2002			QVAZ004-C001A	V R	(Tint, Sub Tint, V. Hold)
44	SP01,02			ESA12P520SG-KD	Speaker	(x2)
45	S1601			QSS1F22-C02	Slide Switch	Speaker Select

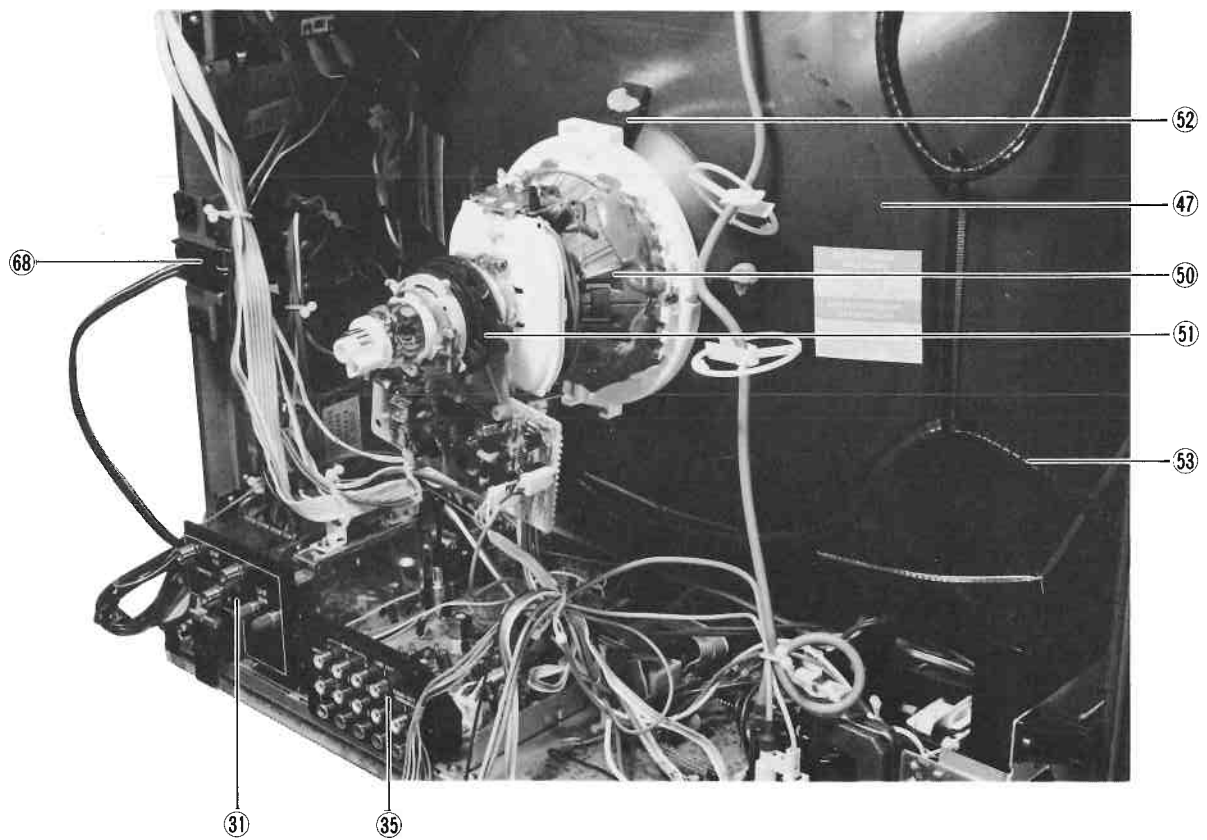
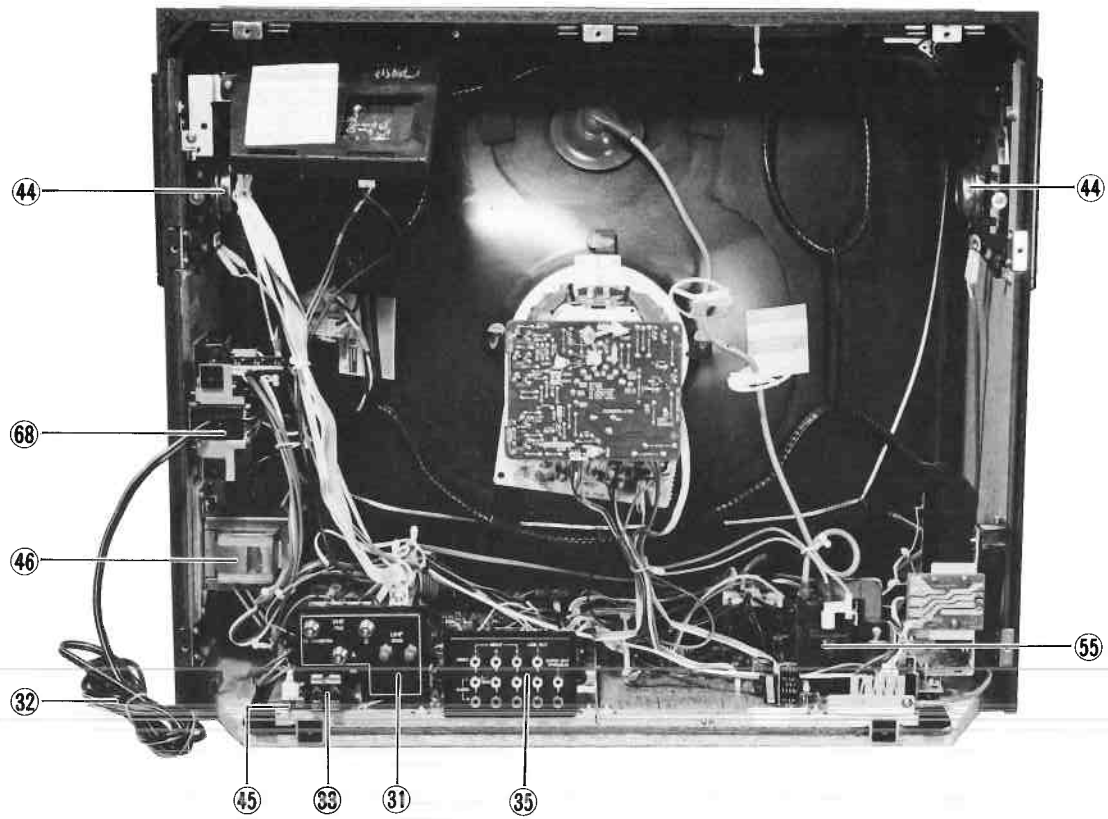
VIEW NO.	SYMBOL NO.			PART NO.	PART NAME	REMARK
46	T01		△	CE30104-00A-KD	Power Transformer	Audio
47	V01	*	△	M66JHX30X	Picture Tube	
48				CM42729-001	Spring	(x2)
49				CH30080-00A	Braided Ass'y	
50	DY01		△	CE20059-B0A-KD	Def. Yoke Ass'y	
51				CE40082-00A	VM Magnet	
52				CE40764-00A	Wedge Ass'y	(x4)
53	L01		△	CJ39694-A0A	Deg. Coil	or CJ39694-00B
54	Q2522		△	2SD1556	Si. Diode	H. Out
55	T522		△	CE40861-00A	HV. Transformer	
56	R2531		△	QRF108K-6R8	UNF Resistor	6.8Ω 10W K
57	R01		△	QRF308K-181	"	180Ω 30W "
58	S2201			QSL4A13-C02	Lever Switch	Service Switch
59	S2401			"	"	V. Center
60	J2803			CE40701-001	Pin Jack (Front)	Video Input
61	J2804			CE40701-002	" ( " )	Audio Input (L)
62	J2805			CE40701-003	" ( " )	" (R)
63	D1701			LN0204GP3-(L)	LED	EE. Indicator
64	D1702,3			GL-9PG26	"	CATV A & B Indicator
65	D1705,9~10			"	"	Video, SAP. Main/SAP. Ind.
66	D1704,8			GL-9PR26	"	Power & Stereo Ind.
67	D1707			GL-9HS2	"	Sleep Timer Ind.
68				A27425-V0	Power Cord Clamp	
69				N47971	Cord Clamp	
70				CM20627-A01	Reflector	(x2)

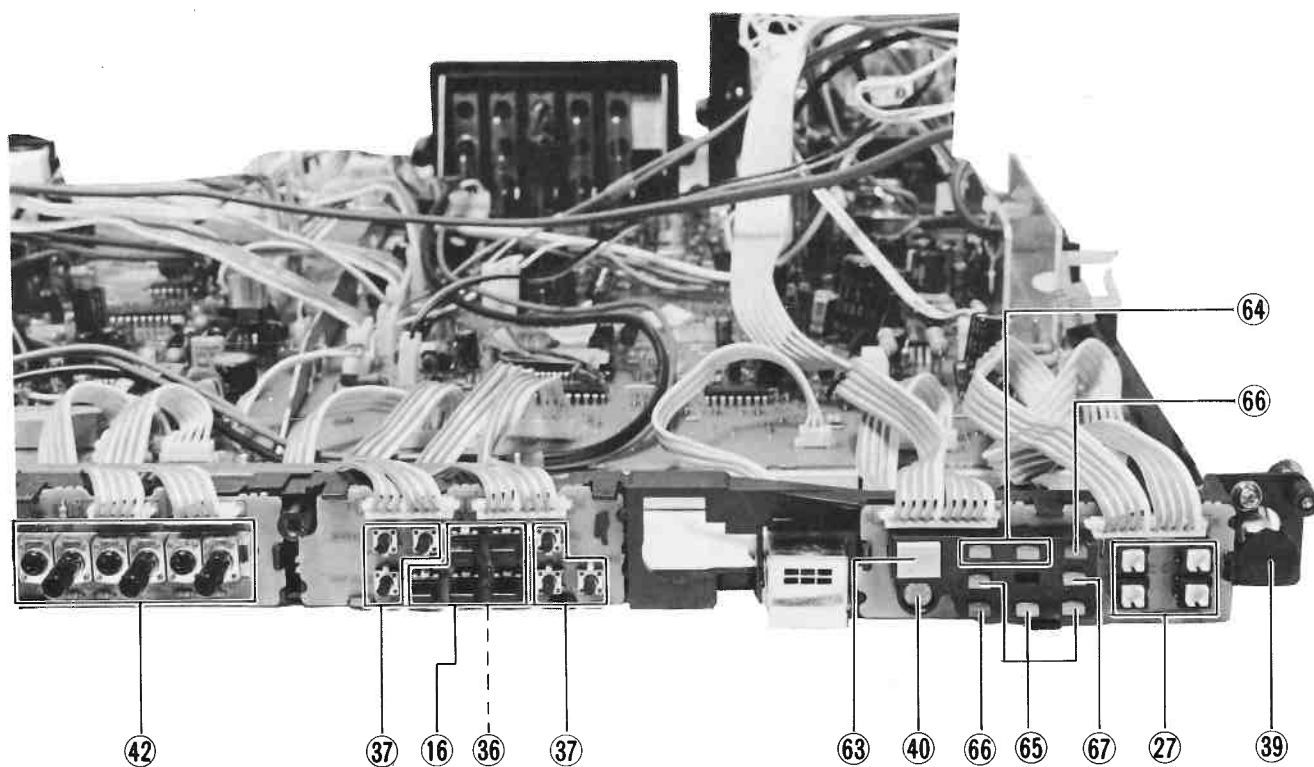
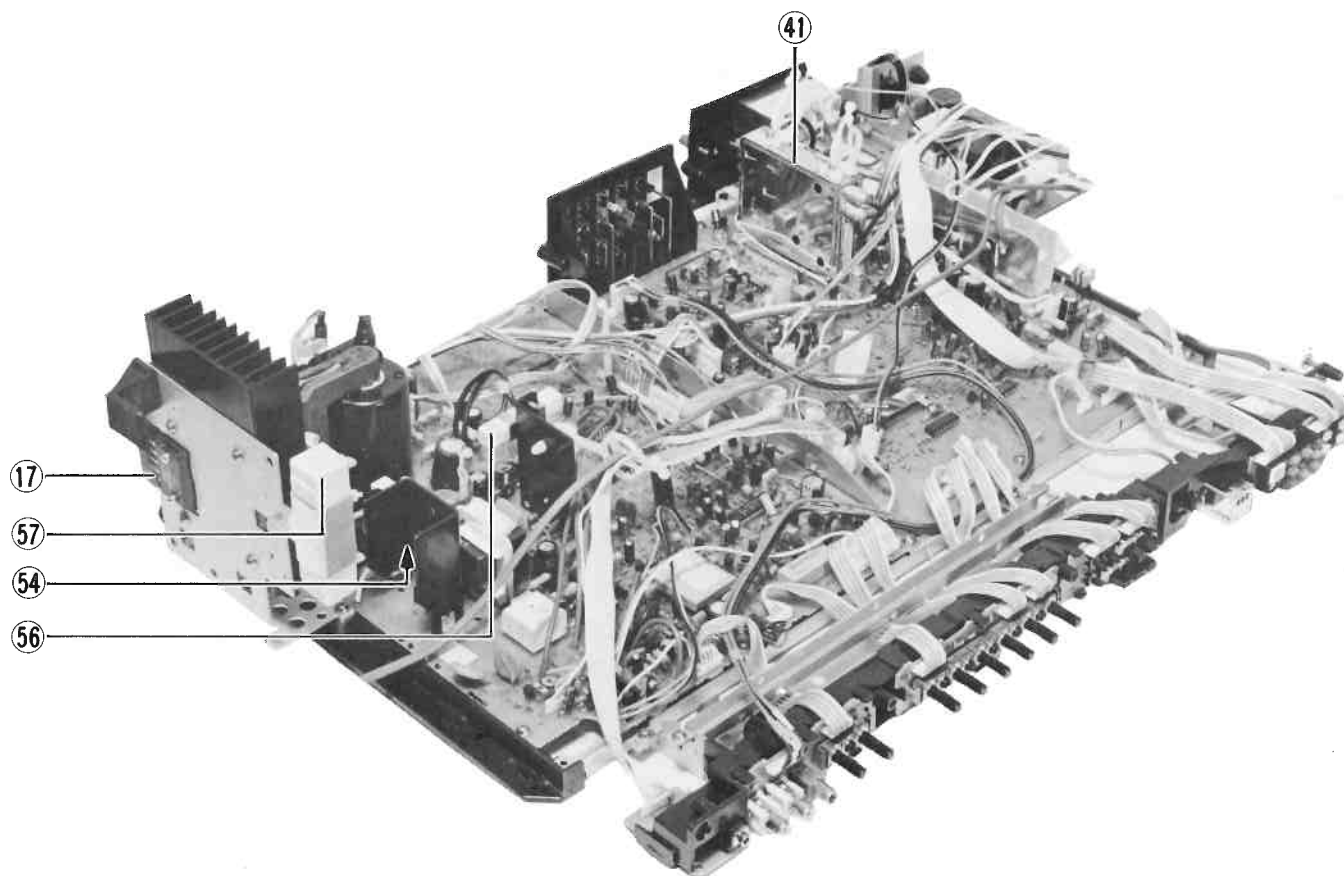
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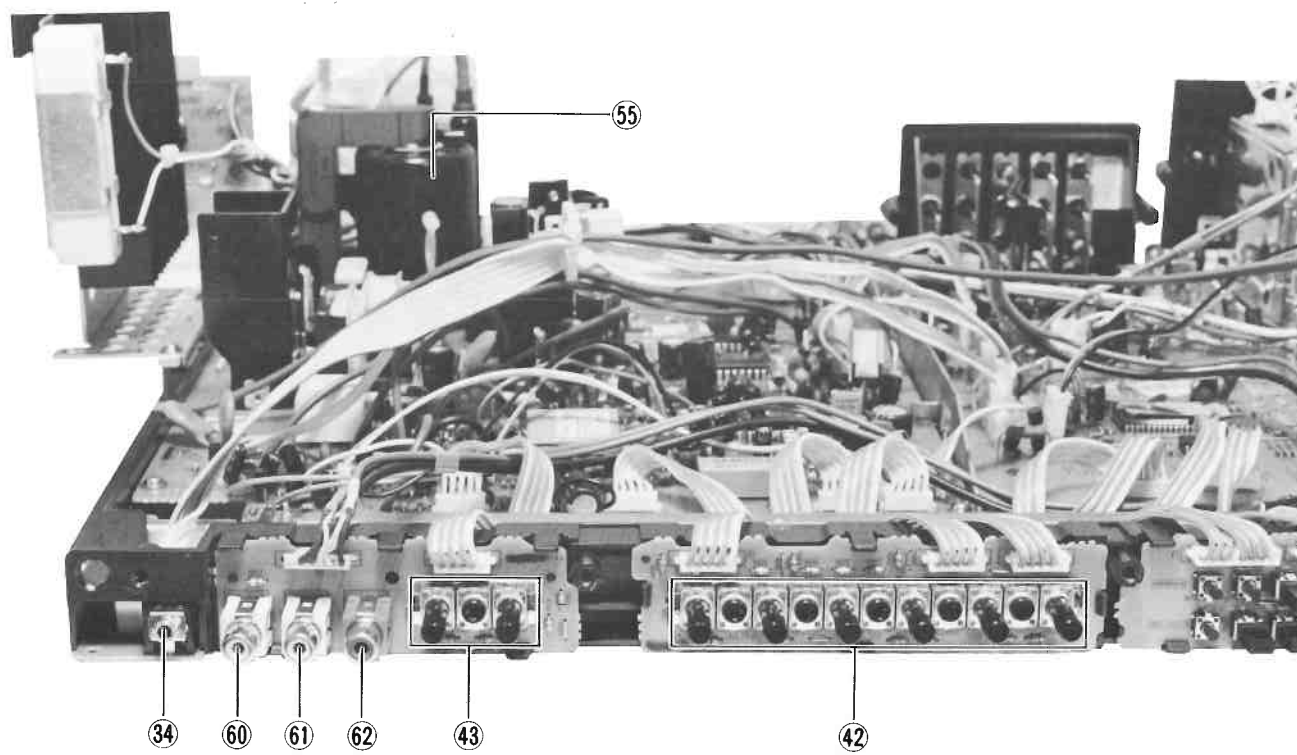
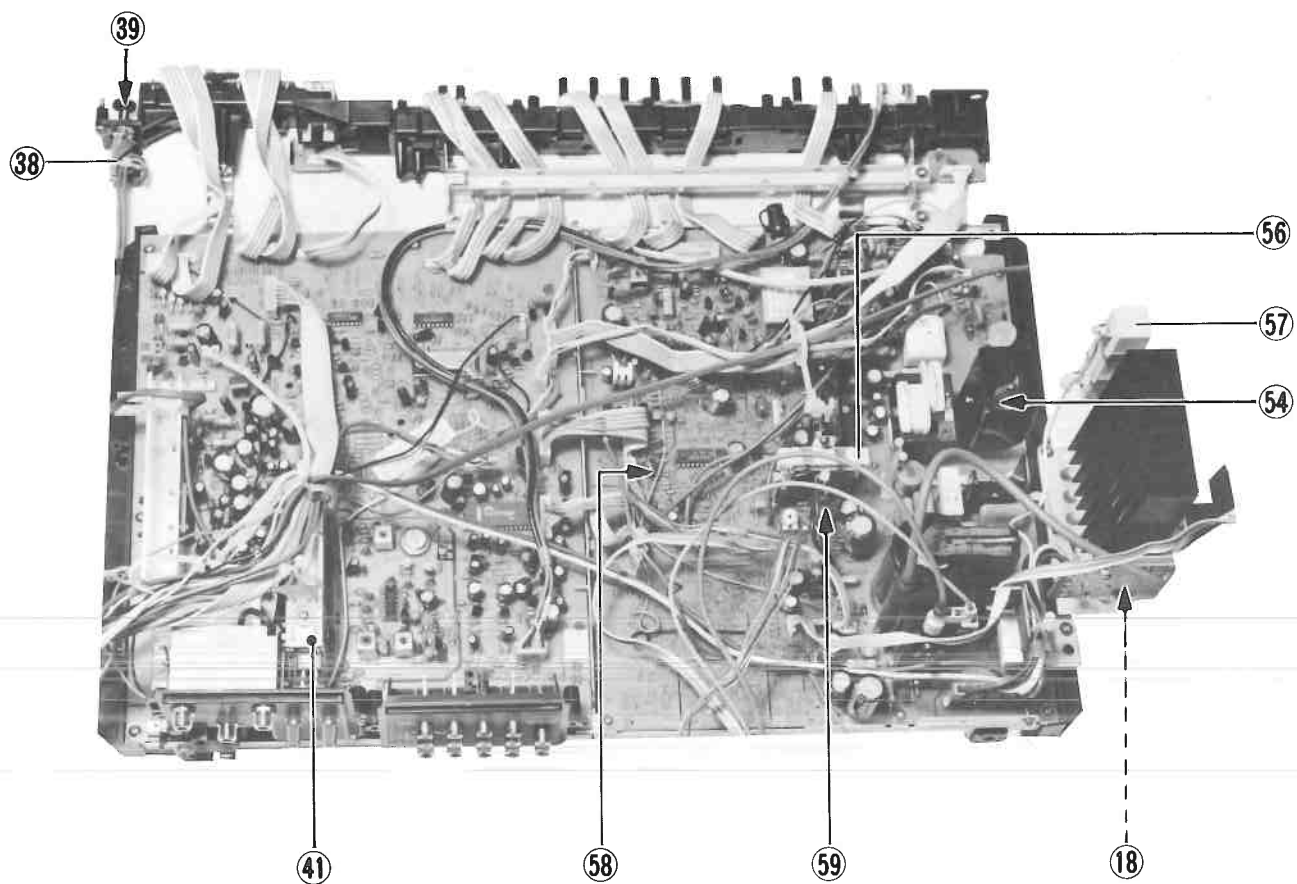


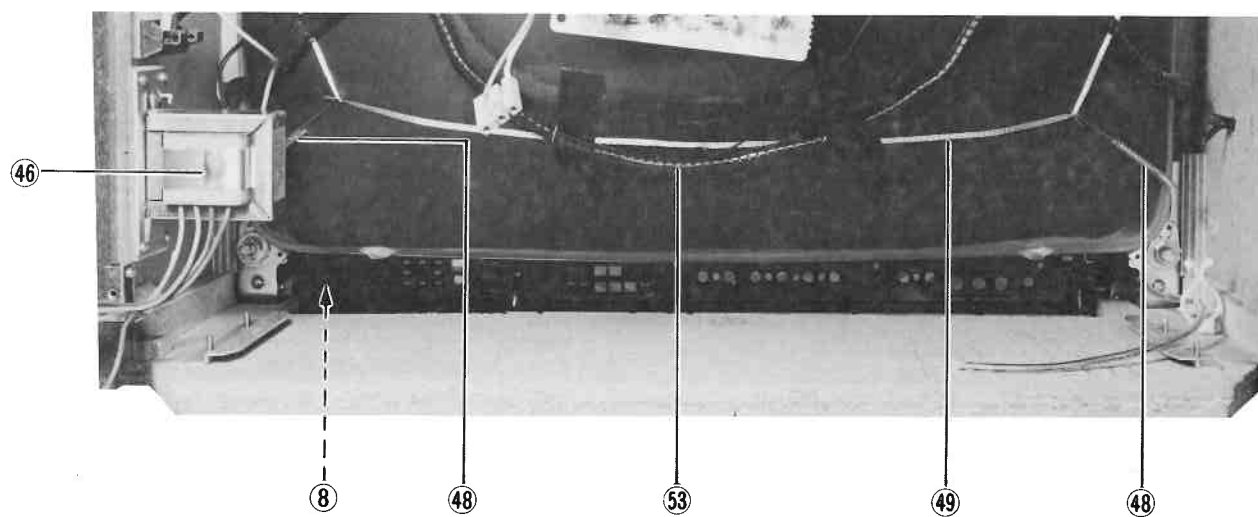
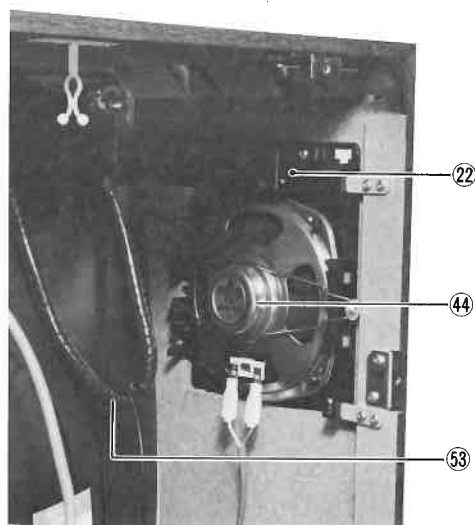
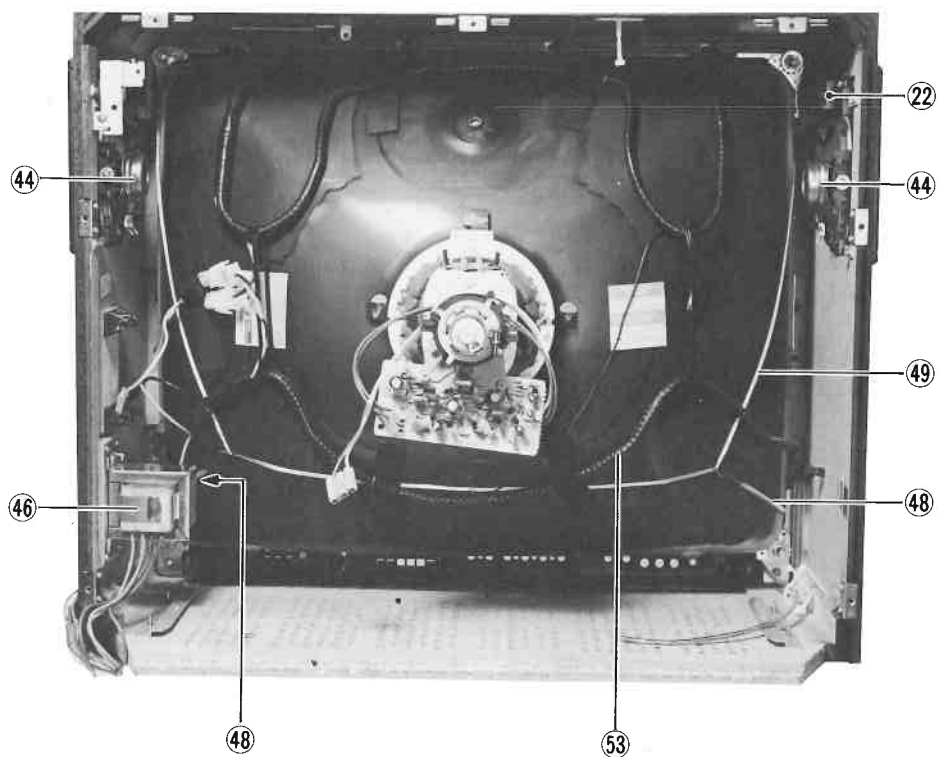












## ■ SQ-1204A (RECEIVER P.B. ASS'Y)

SYMBOL NO.	△	PART NO.	PART NAME	REMARK	SYMBOL NO.	△	PART NO.	PART NAME	REMARK
<b>VARIABLE RESISTOR</b>					D1709		GL-9PG26	L E D	Sap. Ind.
R1113		CEX40197-014	V R (Noise)	10kΩ B	1710		"	"	Main Sap. Ind.
1726		" -023	" (CLK)	2kΩ "	1711		1SS133-Y	Si. Diode	
<b>RESISTOR</b>					~ 19		" -Y	"	
R1745		QRG019J-331S	OM R	330Ω 1W J	1721		" -Y	"	
1902	△	QRG029J-102A	OM R	1kΩ 2W "	~ 23		" -Y	"	
1905	△	QRG019J-680S	"	68Ω 1W "	1731		" -Y	"	
1906		QRG029J-121A	"	120Ω 2W "	~ 34		" -Y	"	
1912		" -222A	"	2.2kΩ " "	1736		" -Y	"	
1915,16		QRG039J-101A	"	100Ω 3W "	1751		" -Y	"	
1925	△	QRG019J-680S	"	68Ω 1W "	1752		MA4270(M)-Y	Zener Diode	
<b>CAPACITOR</b>					1781		PD49PI	Photo Diode	
C1001		QEB51HM-104M	E Cap.	0.1μF 50V M	1791		1SS133-Y	Si. Diode	
1013		QFV71HJ-333MZ	TF Cap.	0.033μF " J	1801		" -Y	"	
1031		QFZ0083-683M	M Cap.	0.068μF " K	~ 6		RD13JS-Y	"	
1032		QFV81HJ-474M	TF Cap.	0.47μF " J	1807		1SS133-Y	"	
1112		QCT25CH-121Z	C Cap.	120pF " "	1808,09		" -Y	"	
1115		QEE61VK-474BZ	Tan. Cap.	0.47μF 35V K	1902,03		RD20E(B3)	Zener Diode	
1118		QEM61CK-476MZ	E Cap.	47μF 16V "	1904		1SR124-400-Z	Si. Diode	
1119		QCT25CH-220Z	C Cap.	22pF 50V J	1905		W06-B-Z	"	
1613,20		QFV81HJ-124M	TF Cap.	0.12μF " "	1906		U05-B	"	
1640		QFZ0083-563MZ	M Cap.	0.056μF " K	1907	△	"	"	
1641		QFV71HJ-104MZ	TF Cap.	0.1μF " J	~ 10		1SS133-Y	"	
1642		" -104MZ	"	" " " "	1911		MA4120(M)-Y	Zener Diode	
1643		QFZ0083-563MZ	M Cap.	0.056μF " K	1912		1SS133-Y	Si. Diode	
1645	△	QETB1EM-108	E Cap.	1000μF 25V M	1921		"	"	
1646	△	QET61ER-107Z	"	100μF " R	~ 23				
1781		QEK51CM-106GM	"	10μF 16V M	<b>TRANSISTOR</b>				
1782		" -336M	"	33μF " "	Q1002		2SC1815(Y,GR)Y	Si. Transistor	
1783		QEK51EM-475GM	"	4.7μF 25V "	1003		2SK105(F)	F E T	
1784		QEK51CM-106GM	"	10μF 16V "	1101		2SC1360	Si. Transistor	
1785		QFV71HJ-333MZ	TF Cap.	0.033μF 50V J	1102		2SA1015(Y,GR)Y	"	
1831,32		QEN61AM-476Z	BP E Cap.	47μF 10V M	1103		2SC1815(Y,GR)Y	"	
1904	△	QET51VR-108	E Cap.	1000μF 35V R	1104		" (GR)-Y	"	
<b>TRANSFORMER</b>					1601		" (Y,GR)Y	"	
T1101		A76166	1st PIF Transf.		1602		2SA1015(Y,GR)Y	"	
1102		A75899	CW Transf.		1603		2SC1815(Y,GR)Y	"	
1103		A75588-B	AFC Transf.		~ 5		2SC1815(Y,GR)Y	"	
1781		CE40304-001	BP Transf.		1702		2SC1815(Y,GR)Y	"	
<b>COIL</b>					1721		" (Y,GR)Y	"	
L1101		CE40453-R82	Peaking Coil	0.82μH	~ 28		" (Y,GR)Y	"	
1102		A76186-15Z	"	15μH	1801		" (Y,GR)Y	"	
1103		" -27	"	27μH	~ 12				
1721		" -2.2	"	2.2μH	1901	△	2SD1265(Q,P)	"	
<b>DIODE</b>					1902		2SC1815(Y,GR)Y	"	
D1001		MA4068(L)-Y	Zener Diode		1903		2SC1959(Y)	"	
1031,32		1SS133-Y	Si. Diode		1904		2SC1815(Y,GR)Y	"	
1601		" -Y	"		1911	△	2SD1133	"	
~ 4					1912		2SC1815(Y,GR)Y	"	
1605		MA4130-Y	Zener Diode		1921		2SA1013	"	
1606,07		1SS133-Y	Si. Diode		<b>IC</b>				
1701		LN0204GP3-(L)	L E D	EE Ind.	IC 1001		UPD1709C-538	I.C.	
1702		GL-9PG26	"	CATV A Ind.	1031		LA7910	"	
1703		"	"	CATV B Ind.	1032		AN7805	"	
1704		GL-9PR26	"	Main Power Ind.	1033		μPC574J(V)	"	
1705		GL-9PG26	"	Video Ind.	1101		TA7607AP	"	
1707		GL-9HS2	"	Sleep Timer Ind.	1601		TA7630P	"	
1708		GL-9PR26	"	Stereo Ind.	1602	△	AN7168	"	
<b>OTHERS</b>					1721		MN14833JTY	"	
CF 1101		A49647-C	Print Jack	(x3)	1751		MN1228	"	
		CE40124-45A	Ceramic Trap.		1761		TA78L005AP	"	
					1781		μPC1373H	"	
					1791		μPD4049UBC	"	
					1801		TA7717AP	"	
					1901		TA78012AP	"	

SYMBOL NO.	△	PART NO.	PART NAME	REMARK	SYMBOL NO.	△	PART NO.	PART NAME	REMARK
CF 1721		CSB500A	Ceramic Filter		S 1707		QSP1A11-C02	Keyboard SW	Add
F 1901	△	QMF53U1-2R5S	Fuse	2.5A	1708		" -C02	"	Input Select
J 1601		CE40805-002	EXT SP Terminal		1709		" -C02	"	Main/Sap.
1801		CM31318-00B-V0	AV Terminal		1710		" -C02	"	Erase
PC 1701		CE40538-00A	CDS		1711		" -C02	"	Power
P 1101		CE40061-47C	Piezomotor		1712		" -C03	Push Switch	CH Up
SF 1101		CE40050-204	SAW Filter		1713		" -C03	"	CH Down
S 1601		QSS1F22-C02	Slide Switch	SPK Select	1714		" -C03	"	Vol. Up
1701		QSP2C22-C01	Push Switch	Disk	1715		" -C03	"	Vol. Down
1702		" -C01	"	Stereo	UV1001	△	AN7772EP-A03	CATV Tuner	
1703		" -C01	"	Skew	X1001		CE40842-001	Crystal	
1704		" -C01	"	EE					
1705		" -C01	"	Select/Lock					
1706		QSP1A11-C02	Keyboard SW.	Broadcast					

### ■ SQ-3202A (CRT SOCKET P.B. ASS'Y)

SYMBOL NO.	△	PART NO.	PART NAME	REMARK	SYMBOL NO.	△	PART NO.	PART NAME	REMARK
<b>VARIABLE RESISTOR</b>					<b>COIL</b>				
R3113		CEX40202-053	V R (R. Cut Off)	5kΩ B	L 3101		QQL043K-101	Peaking Coil	100μH
3114		" -053	" (G. Cut Off)	" "	~ 3				
3115		" -053	" (B. Cut Off)	" "	3104		A04725-47	"	47μH
3119		" -022	" (R. Drive)	200Ω "	~ 6				
3120		" -022	" (G. Drive)	" "	<b>DIODE</b>				
<b>RESISTOR</b>					D3101		1S1555-Y	Si. Diode	
R3104		QRG029J-153	OM R	15kΩ 2W J	~ 5				
~ 6		" -183	"	18kΩ " "	3161		RM2C	"	
3107					<b>TRANSISTOR</b>				
~ 9		QRZ0056-332Z	Comp. R	3.3kΩ ½W K	Q3101		2SC1360	Si. Transistor	
3125		QRZ0039-332	"	" 200V "	~ 3		2SC2068	"	
3162		ERZ-C05ZK271	Z N R		3104				
3164					~ 6				
<b>CAPACITOR</b>					3151		2SC1815(Y)-L	"	
C3161		QFH63BK-223M	MM Cap.	0.022μF 1250V K	3152		" (Y)-L	"	
3163	△	QET52ER-106	E Cap.	10μF 250V R	<b>OTHERS</b>				
						△	A75522-C	CRT Socket	

### ■ SQ-2204A (DISPLAY P.B. ASS'Y)

SYMBOL NO.	△	PART NO.	PART NAME	REMARK	SYMBOL NO.	△	PART NO.	PART NAME	REMARK
<b>VARIABLE RESISTOR</b>					R2531	△	QRF108K-6R8	UNF R	6.8Ω 10W K
R2001		QVAZ003-C001A	V R (Detail, Tone, Balance, Color Sub-Color, Bright, Sub-Bright Picture, Sub-Picture)		2532	△	QRG019J-223S	OM R	22kΩ 1W J
2002		QVAZ004-C001A	" (V. Hold, Tint, Sub-Tint)		2535,36	△	QRX039J-2R2A	MF R	2.2Ω 3W "
2212		CEX40358-471	" (Comb Filter)	470Ω B	2539,40	△	QRX029J-3R9A	"	3.9Ω 2W "
2258		CEX40197-053	" (Auto Black)	5kΩ "	2541	△	QRD149J-1R0S	C R	1Ω ½W "
2421		QVPA801-201M	Trim. R (V. Lin.)	200Ω "	2571	△	CJ39622-00E	R Block	
2423		" -201M	" (V. Height)	" "	2573	△	QRX029J-4R7A	MF R	4.7Ω 2W "
2506		CEX40202-053	V R (H. Freq.)	5kΩ "	2901	△	QRC121K-275Z	Comp. R	2.7MΩ ½W K
<b>RESISTOR</b>					2903	△	QRF056J-3R9C	UNF R	3.9Ω 5W J
R2425		QRX029J-1R2A	MF R	1.2Ω 2W J	2904	△	QRD122J-103S	C R	10kΩ ½W "
2433		QRG029J-271A	OM R	270Ω " "	2905	△	QRD142J-221S	"	220Ω ¼W "
2434		" -102A	"	1kΩ " "	2906	△	" -224S	"	220kΩ " "
2435		" -122	"	1.2kΩ " "	<b>CAPACITOR</b>				
2436		" -331A	"	330Ω " "	C2207		QEN61CM-106Z	BP E Cap.	10μF 16V M
2441		QRG019J-102S	"	1kΩ 1W "	2308		QEC91HM-224M	E Cap.	0.22μF 50V "
2524		QRG039J-680A	"	68Ω 3W "	2312		QEU51CM-477M	"	470μF 16V "
2526	△	QRG029J-330	"	33Ω 2W "	2313		QFV71HJ-104MZ	TF Cap.	0.1μF 50V J
2527	△	QRG019J-391S	"	390Ω 1W "	2323		QAT3110-300A	Trimmer Cap.	
2528		QRF054J-560	UNF R	56Ω 5W "	2402		QFV81HJ-104M	TF Cap.	0.1μF " "
					2406		QEE61VK-475BZ	Tan Cap.	4.7μF 35V K
					2407		QETA1CM-108	E Cap.	1000μF 16V M
					2409		QEU51CM-108M	"	" " "



SYMBOL NO.	△	PART NO.	PART NAME	REMARK	SYMBOL NO.	△	PART NO.	PART NAME	REMARK
C2422		QFV81HJ-224M	TF Cap.	0.22μF 50V J	D2501		MA4110(M)-Y	Zener Diode	
2427	△	QET51VR-227	E Cap.	220μF 35V R	~ 4				
2429		QEM61CK-476MZ	E Cap.	47μF 16V K	2522		1N4003	Si. Diode	
2431		QFV71HJ-104MZ	TF Cap.	0.1μF 50V J	2523		CTU-G3DR	Dump Diode	
2432		" -154MZ	"	0.15μF " "	2524		U19E-F	Si. Diode	
2434		QFK62AK-224M	MM Cap.	0.22μF 100V K	2531	△	V19E-Z	"	
2436		QFV81HJ-684M	TF Cap.	0.68μF 50V J	2532	△	" -Z	"	
2471		QEN61HM-105Z	BP E Cap.	1μF " M	2533	△	RH-1S-Z	"	
2504		QFP31HJ-562S	PP Cap.	5600pF " J	2534	△	RGP10J-Z	"	
2524	△	QFZ0081-9201S	MPP Cap.	9200pF 1600V	2535	△	RH-1S-Z	"	
2525	△	" 8801S	"	8800pF 1600V ±3%	2536	△	1SS133-Y	"	
2526	△	QFM72DJ-104M	MY Cap.	0.1μF 200V J	2571	△	HZ7B2LV1	Zener Diode	
2527	△	QET52CR-336	E Cap.	33μF 160V R	2572	△	1SS81	Si. Diode	
2528		QFZ0067-474S	MPP Cap.	0.47μF 200V K	2861		1SS133-Y	"	
2531		QEN61HM-474Z	BP E Cap.	" 50V M	~ 64				
2532	△	QETB1VM-228	E Cap.	2200μF 35V "	2865		RD6.8JS-Y	Zener Diode	
2533	△	QET51ER-477	"	470μF 25V R	<b>TRANSISTOR</b>				
2536	△	QET52ER-336	"	33μF 250V "	Q2201		2SC1740(Q,R)-Y	Si. Transistor	
2537	△	QET61HR-476	"	47μF 50V "	~ 4				
2538	△	QET52CR-106	"	10μF 160V "	2205		" -L	"	
2539	△	QETB1CM-338	"	3300μF 16V M	2206		2SA933(Q,R)-Y	"	
2541		QFK62AJ-104M	MM Cap.	0.1μF 100V J	2207		2SC1740(Q,R)-Y	"	
2572	△	QET52VR-107	E Cap.	100μF 35V R	~ 9				
2803,04		QEN61HM-105Z	BP E Cap.	1μF 50V M	2210		2SA933(Q,R)-Y	"	
2821,22		QEN61CM-106Z	"	10μF 16V "	2211		2SC1740(Q,R)-Y	"	
2901,02	△	QCZ9016-103A	C Cap.	0.01μF AC125V "	2212		" -Y	"	
2903	△	QET52CR-336	E Cap.	33μF 160V R	2271		2SA673(C)	"	
<b>TRANSFORMER</b>					2272		2SC1740(Q,R)-Y	"	
T2201		CE40176-001	DL P Transf.		2301		" -Y	"	
2301		A75196-B	3.58 BP Trans.		~ 4				
2411		CE40619-00A	BP Transf.		2411		2SB642(Q,R)	"	
2521	△	CE40361-00E	Drive Transf.		2412		2SC1740(Q,R)-Y	"	
2523	△	CE40763-00F	Side Pin Trans.		2413		" -Y	"	
<b>COIL</b>					2452		" -Y	"	
L2201		CE40041-180	Peaking Coil	18μH	2471		2SA933(Q,R)-Y	"	
2202		A76186-5.6Z	"	5.6μH	2501		2SC1740(Q,R)-Y	"	
2301		" -33Z	"	33μH	2503		2SC1740(Q,R)-L	"	
2302		" -68Z	"	68μH	2521		2SC1627A	"	
2303		" -6.8	"	6.8μH	2522	△	2SD1556	"	or 2SD1428 H. Out
2304		" -56	"	56μH	<b>IC</b>				
2305		A49468-103	"		IC 2201		AN5322K	I.C.	
2306		A76186-82	"	82μH	2301		TA78012AP	"	
~ 8					2421	△	AN5521	"	
2521	△	CE40860-00A	Linearity Coil		2451		AN5560	"	
2531	△	CJ30030-046	Heater Choke		2501		HA11423	"	
<b>DIODE</b>					2801		M51320P	"	
D2220		1SS133-Y	Si. Diode		2804		AN5352	"	
~ 25					<b>OTHERS</b>				
2271		W06A-Z	"		DL2201		CE40873-001	1H Delay Line	
2272		1SS133-Y	"		2202		CE40876-A01	Delay Line	
2273		MA4110(M)	Zener Diode		2203		CEX40215-001	"	
2301		1SS133-Y	Si. Diode		J 2601		AX49607-004	Headphone Jack	
~ 3					2803		CE40701-001	Pin Jack	Video In.
2331		" -Y	"		2804		" -002	"	Audio In (L)
~ 36					2805		" -003	"	Audio In (R)
2401		MA4110(M)-Y	Zener Diode		S 2201		QSL4A13-C02	Lever Switch	Service SW.
2402		05AZ75	"		2401		" -C02	"	V. Center
2411,12		1SS133-Y	Si. Diode		X2301		A76351-D	Crystal	
2421	△	W06A-Z	"						
2422		1SS81	"						
2471		1SS133-Y	"						



## ■ SQ-6202A (MULTI. SOUND P.B. ASS'Y)

SYMBOL NO.	△	PART NO.	PART NAME	REMARK	SYMBOL NO.	△	PART NO.	PART NAME	REMARK
<b>VARIABLE RESISTOR</b>					<b>COIL</b>				
R6202		CEX40202-015	V R (Level)	100kΩ B	L6101		CE40143-R47	Peaking Coil	0.47μH
6211		" -014	" (fH)	10kΩ "	6102		A76186-1,2	"	1.2μH
6236		" -053	" (5fH)	5kΩ "	<b>DIODE</b>				
6312		" -014	" (NR Level)	10kΩ "	D6401		1SS133-Y	Si. Diode	
6322		" -024	" (Seps.)	20kΩ "	<b>TRANSISTOR</b>				
6327		" -023	" (Expander)	2kΩ "	Q6101		2SC1906	Si. Transistor	
6341		" -054	" (Timing)	50kΩ "	6401		2SC1815(Y,GR)Y	"	
<b>CAPACITOR</b>					~ 8		" (Y,GR)Y	"	
C6110		QEE51VK-224M	Tan. Cap.	0.22μF 35V K	6501		" (Y,GR)Y	"	
6201		QEN61CM-106Z	BP E Cap.	10μF 16V M	6502		" (Y,GR)Y	"	
6204		" -106Z	"	" " "	<b>IC</b>				
6212		QFP31HJ-681S	PP Cap.	680pF 50V J	IC 6101		TA8603P	I.C.	
6213		QEB61HM-104MZ	E Cap.	0.1μF " M	6201		μPC1480CA	"	
6216		QEN51HM-105	BP E Cap.	1μF " "	6301		μPC1481CA	"	
6231		QFV81HJ-334M	TF Cap.	0.33μF " J	6401		μPC1373H	"	
6303		QEN51CM-106	BP E Cap.	10μF 16V M	<b>OTHERS</b>				
6313		QEN61HM-105Z	"	1μF 50V "	CF 6601		A74603-C	Ceramic Filter	
6317		QEN61EM-226Z	"	22μF 25V "	J 6101		A49647-C	Print Jack	
6319		QEN61CM-106Z	"	10μF 16V "	SF 6101		CE41031-201	SAW Filter	
6333		QEN61HM-474Z	"	0.47μF 50V "					
6341		QEE51CK-106M	Tan. Cap.	10μF 16V K					
6342		" -106M	"	" " "					
6344		QETB1CM-107	E Cap.	100μF " M					
<b>TRANSFORMER</b>									
T6102		A75587	CW. Transf.						
6200		CE41026-001	3FH LPF						
6201		CE41027-001	FH LPF						
6202		" -001	"						
6300		CE41028-001	5FH BPF						
6601		CEX40485-A01	S Take Off Trans.						
6602		A74911	I. F. Transf.						

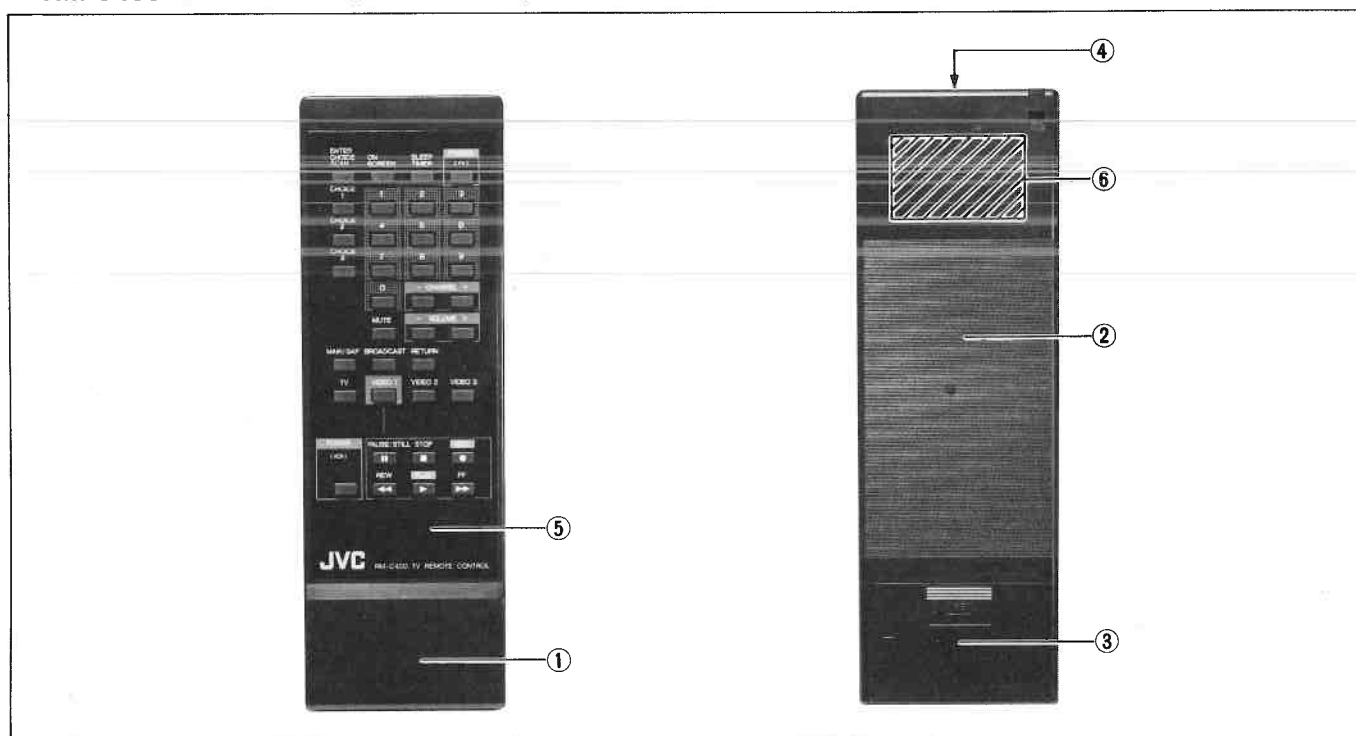
## ■ SQ-9203A (EDGE CONTROL P.B. ASS'Y)

SYMBOL NO.	△	PART NO.	PART NAME	REMARK	SYMBOL NO.	△	PART NO.	PART NAME	REMARK
<b>RESISTOR</b>					<b>TRANSISTOR</b>				
R9119		A04955-351	N Thermistor		D9105		RH1	Si. Diode	
9132		QRG029J-391A	OM R	390Ω 2W J	9106		"	"	
<b>CAPACITOR</b>					<b>OTHERS</b>				
C9104		QEN51CM-106	BP E Cap.	10μF 16V M	Q9101		2SC1685	Si. Transistor	
9113	△	QET52CR-106	E Cap.	" 160V R	~ 5		2SA1015(Y,GR)	"	
9117		" -106	"	" " "	9106		2SA1112(Q)	"	
<b>COIL</b>					9107		2SC2592(Q)	"	
L9101		A76186-39	Peaking Coil	39μH	9108		2SC1685	"	
9102		A04354-001	Choke Coil		9109				
~ 5					<b>OTHERS</b>				
<b>DIODE</b>					FR9101	△	QRH127J-221M	F-R	220Ω ¼W J
D9101		RD11E(B)	Zener Diode						
9102		1S1555-K	Si. Diode						
~ 4									

## ■ SQ-9204A (POWER P.B. ASS'Y)

SYMBOL NO.	△	PART NO.	PART NAME	REMARK	SYMBOL NO.	△	PART NO.	PART NAME	REMARK
<b>RESISTOR</b> R9002	△	QRF106K-2R2	UNF R	2.2Ω 10W K	<b>DIODE</b> D9001 ~ 4 9005	△	RM2C  1S2473H-K	Si. Diode "	
<b>CAPACITOR</b> C9005 9006 9007 9008 9009 9010	△ △ △ △ △ △	QCZ9025-472A " -472A " -472A QEU72DM-567M QFZ9025-104M " -104M	C Cap. " " E Cap. MF Cap. "	4700pF AC125V Z " " " " " " 560μF 200V M 0.1μF AC125V " " " "	<b>OTHERS</b> F9001 9002 LF9001 9002 RY9001 TH9001	△ △ △ △ △ △	QMF66U1-4R0S QMF53U1-1R25S CE40248-00B CE40719-00B CE40134-001 A75511	Fuse " Line Filter " Relay Posistor	4A 1.25A

## ■ RM-C400 REMOTE CONTROL TRANSMITTER



VIEW NO.	SYMBOL NO.	△	PART NO.	PART NAME	REMARK
1			102RRT-009-01R	Front Case	
2			102RRT-100-01R	Bottom Case	
3			103RRT-026-01R	Battery Cover	
4			811RRT-020-01R	Filter	
5			201RRT-084-03R	Operation Sheet	
6	Q01, Q03 Q02, Q04 Q05 IC01		204RRT-075-01R 2SA933R 2SC1740R 2SB1010Q M50463P	Rating Label Transistor " " IC	Decoder Pulse Generator
	D05 X1 (D1 ~ D4) (D6 ~ D9)		LN66-S CSB455EB 1S1555	Diode Ceramic Filter Diode	



# JVC AV-2676 (US) SCHEMATIC DIAGRAM

## NOTICE

- The voltage reading and waveform were measured at each point with a multi-meter and an oscilloscope while receiving a service color bar signal with a sufficient sensitivity.

- Indicated voltage condition
  - Stereo switch : AUTO position
  - Receiving signal : MONO.
  - / voltage : Changeover voltage

- The measurements were made with each VR under the condition just after the shipment. The figures of the signal circuits may be more or less different after adjustments, so use the figures simply for reference.

Multimeter used  
DC 20k $\Omega$ /V

Given figures are all DC voltages.

Sweep speed of oscilloscope

H  $\rightarrow$  20  $\mu$ S/div. V  $\rightarrow$  5 mS/div.

Others  $\rightarrow$  sweep speed specified

## Capacitor

- Capacitance
  - Above 1 [pF] : Below 1 [ $\mu$ F]
- Withstand Voltage
  - Without indication : DC 50 [V]
  - Others : DC withstand voltage [V]
  - AC indicated : AC withstand voltage [V]

- Indications for electrolytic capacitors are as follows.  
(Example)  
47/50  $\rightarrow$  capacitance [ $\mu$ F] / withstand voltage [V]

- Type
  - Without indication : Ceramic capacitor
  - MY : Mylar capacitor
  - MM : Metalized mylar capacitor
  - PP : Polypropylene capacitor
  - MPP : Metalized polypropylene capacitor
  - NP : Nonpolar electrolytic capacitor
  - BP : Bipolar electrolytic capacitor
  - TAN. : Tantalum capacitor

Since the schematic diagram is a standard one, the circuit and circuit constants may be subject to change for improvement without any notice.

## SAFETY

FR ( $\sim$ FR) denotes a fusible resistor which operates as a fuse. When replacing fusible resistors parts indicated with black shading (■) in the circuit diagrams, be sure to ensure safety by using designated parts.

As to other parts too, use designated parts to maintain safety and performance.

## INDICATION OF PARTS SYMBOL

Inside board (Example) SQ-1204A: R1209  $\rightarrow$  R209

Outside board (Example) R0001  $\rightarrow$  R01

## SCHEMATIC DIAGRAM INDICATION

### Resistor

- Resistance value
  - Without unit: [ $\Omega$ ] K : [k $\Omega$ ] M : [M $\Omega$ ]
- Rated allowable power
  - Without indication : 1/6 W
  - Others Indicated

- Type
  - Without indication : Carbon resistor
  - OMR : Oxide metal film resistor
  - UNF : Unflammable resistor
  - MF R : Metal film resistor
  - FR : Fusible resistor

\* Composition resistor 1/2 [W] is indicated as 1/2S or Comp.

## Coil

Without unit : [ $\mu$ H]

## Power Supply

— : B<sub>1</sub> (125V), — : B<sub>2</sub> (12V)

— : Stand by voltage (+12V),

— : Stand by voltage (+5V)

## Connection method

- : Connector,  $\rightarrow$  : Receptacle
- : Wrapping or soldering

\* Each voltage reading specified.

## Test point & GND. symbol.

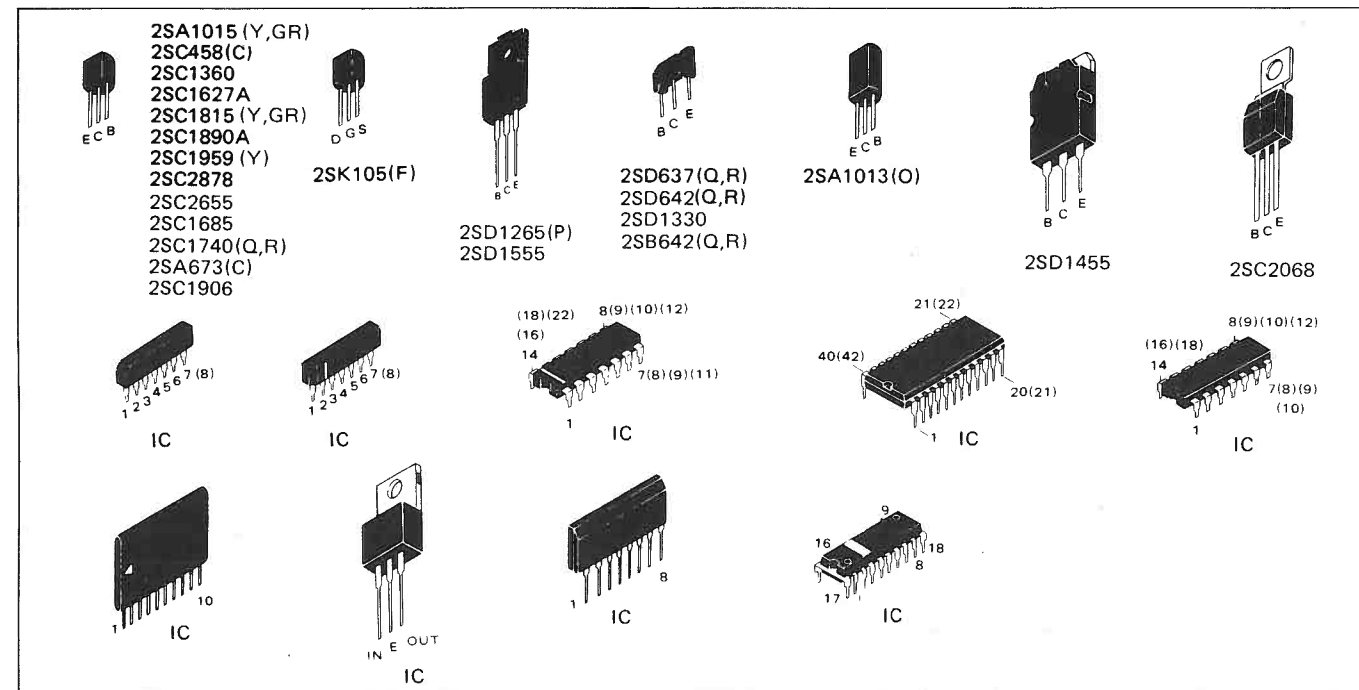
- ⦿ : Test point by miniature GT pin
- ⊥ : Live side ground  $\perp$  : Earth ground.
- ⦿ : Neutral side ground

## NOTE FOR SERVICE

This model's power circuit is partly different in the GND. The difference of the GND is shown by the LIVE(primary: ⊥) side GND and the NEUTRAL(secondary: ⦿) side GND. Don't short between the LIVE side GND and NEUTRAL side GND or never measure with a measuring apparatus (oscilloscope etc.) the LIVE side GND and NEUTRAL side GND at the same time.

If above note will not be kept, a fuse or any parts will be broken.

## ■ BASING OF TRANSISTOR & ICs

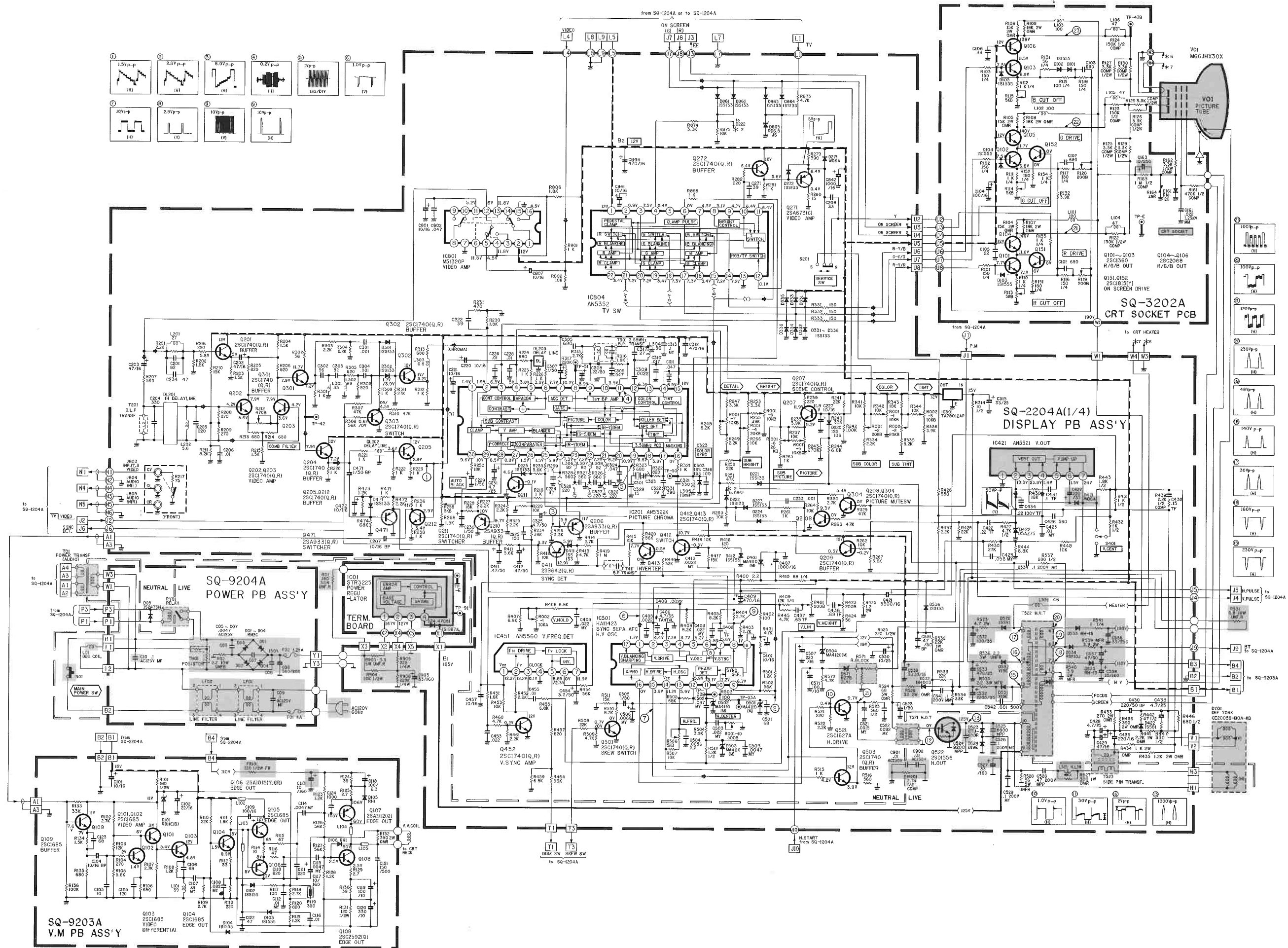


## ■ PARTS LIST (SHADED PARTS IN THE SCHEMATIC DIAGRAM)

Symbol No.	Part No.	Part Name	Symbol No.	Part No.	Part Name
SQ-1204A (RECEIVER P.B. ASS'Y)			TRANSFORMER		
RESISTOR			T 2521	CE40361-00E	Hor. Drive Transf.
R1902	QRG019J-102A	OM R	2523	CE40763-00F	Side Pin Transf.
1905	QRG019J-680S	"			
1925	" -680S	"			
CAPACITOR			DIODE		
C1645	QETB1EM-108	E Cap.	D2421	W06A-Z	Si. Diode
1646	QETB1ER-107Z	"	2531	V19E-Z	"
1904	QET51VR-108	"	2532	"	"
			2533	RH-1S-Z	"
			2534	RGP10J-Z	"
			2535	"	"
			2571	HZ7B2LV1	Zener Diode
			2572	1SS81	Si. Diode
DIODE					
D1907~10	U05-B	Si. Diode	SQ-3202A (CRT SOCKET P.B. ASS'Y)		
				A75522-C	CRT Socket
TRANSISTOR			CAPACITOR		
Q1901	2SD1815(Y,GR)Y	Transistor	C3163	QET52ER-106	E Cap.
1911	2SD1133	"			
IC			SQ-9204A (POWER P.B. ASS'Y)		
IC 1602	AN7168	IC	RESISTOR		
			R9002	QRF106K-2R2	UNF R
OTHERS					
UV1001	AN7772EP-A03	CATV Tuner	CAPACITOR		
F 1901	QMF53U1-2R5S	Fuse	C9005	QCZ9025-472A	C Cap.
			9006	" -472A	"
			9007	" -472A	"
			9008	QEU72DM-567M	E Cap.
			9009	QFZ9025-104M	MF Cap.
			9010	" -104M	"
SQ-2204A (DISPLAY P.B. ASS'Y)			DIODE		
RESISTOR			D9001~04	RM2C	Si. Diode
R2526	QRG029J-330	OM R			
2527	QRG019J-391S	"	OTHERS		
2531	QRF108K-6R8	UNF R	F9001	QMF66U1-4R0S	Fuse
2535	QRX039J-2R2A	MF R	9002	QMF53U1-1R25S	"
2536	" -2R2A	"	RY9001	CE40134-001	Relay
2539	QRX029J-3R9A	"	LF 9001	CE40248-00B	Line Filter
2540	" -3R9A	"	9002	CE40719-00A	"
2541	QRD149J-1R0S	C R	TH9001	A75511	Posistor
2571	CJ39622-00E	R Block			
2573	QRX029J-4R7A	MF R	SQ-9203A (EDGE CONTROL P.B. ASS'Y)		
2901	QRC121K-275Z	Comp. R	CAPACITOR		
2903	QRF056J-3R9C	UNF R	C9113	QET52CR-106	E Cap.
2904	QRD122J-103S	C R			
2905	QRD142J-221S	"	OTHER		
2906	" -224S	"	FR9101	QRH127J-221M	F R
CAPACITOR			OUTSIDE OF P.C.B.s ASS'Y		
C2427	QET51VR-227	E Cap.	T01	CM20697-00A-V0	ANT. Terminal Ass'y
2524	QFZ0081-9201S	MPP Cap.	V01	QMP1460-244K	Power Cord
2525	" -8801S	"	DY01	CE30104-00A-KD	Power Transf. (Audio)
2526	QFM72DJ-104M	MY Cap.	L01	M66JHX30X	Picture Tube
2527	QET52CR-336	E Cap.	T522	CE20059-80A-KD	Def. Yoke Ass'y
2532	QETB1VM-228	"	L01	CJ39694-A0A	Deg. Coil (or CJ39694-00B)
2533	QET51ER-477	"	IC01	CE40861-00A	H. V Transformer
2536	QET52ER-336	"	D01	1S1887A	IC
2537	QET61HR-476Z	"	S01	QSP4C11-C01	Si. Diode
2538	QET52CR-106	"	R01	QRF308K-181	Main Power Switch
2539	QETB1CM-338	"			UNF R
2572	QET51VR-107	"			
2901,02	QCZ9014-103A	C Cap.			
2903	QET52CR-336	E Cap.			
COIL					
L 2521	CE40860-00A	Linearity Coil			
2531	CJ30030-046	Heater Choke			
IC & TRANSISTOR					
IC2421	AN5521	IC			
Q2522	2SD1556	Transistor (H. Out)			

## 7

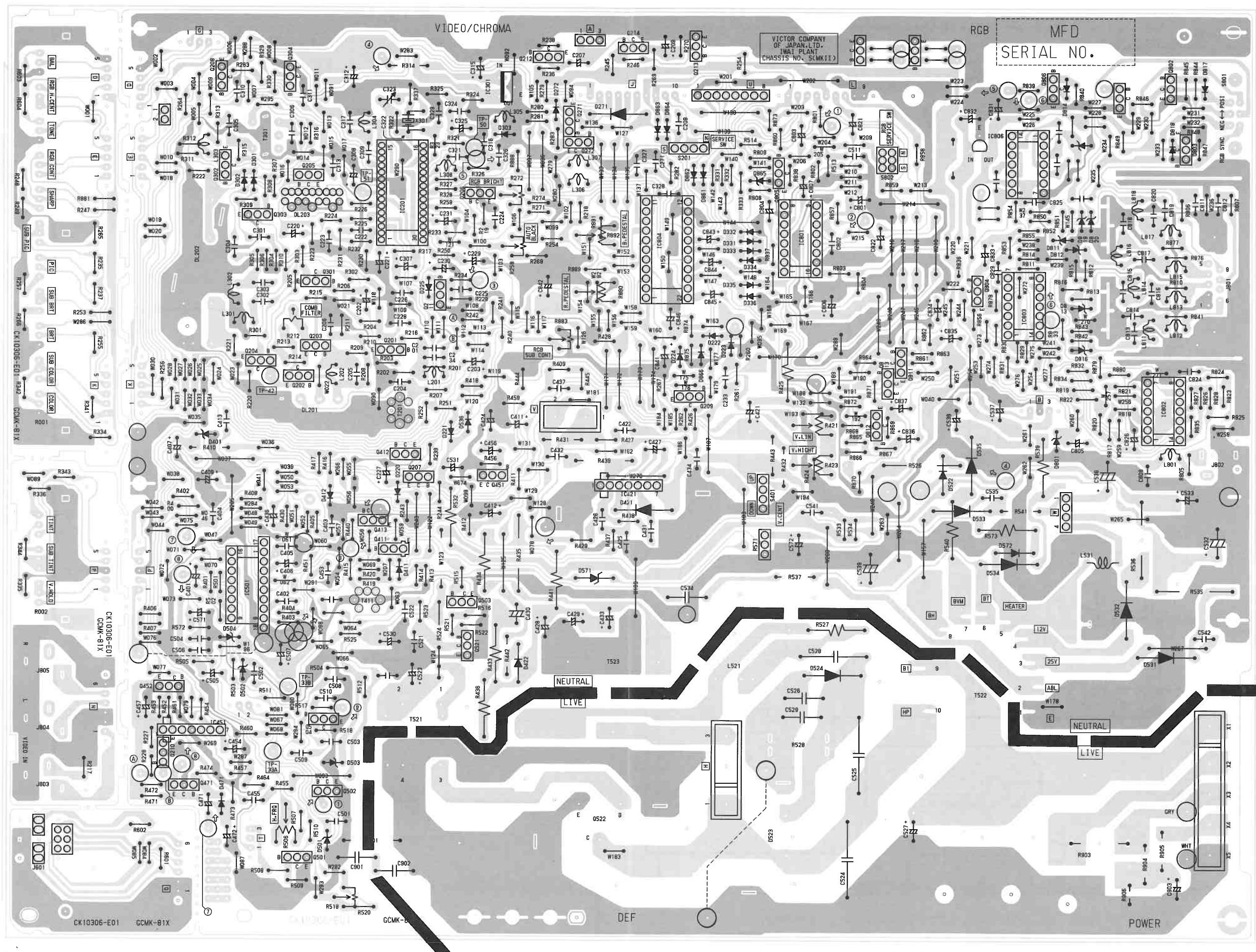
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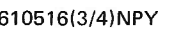




## DISPLAY P.B. BACK PATTERN



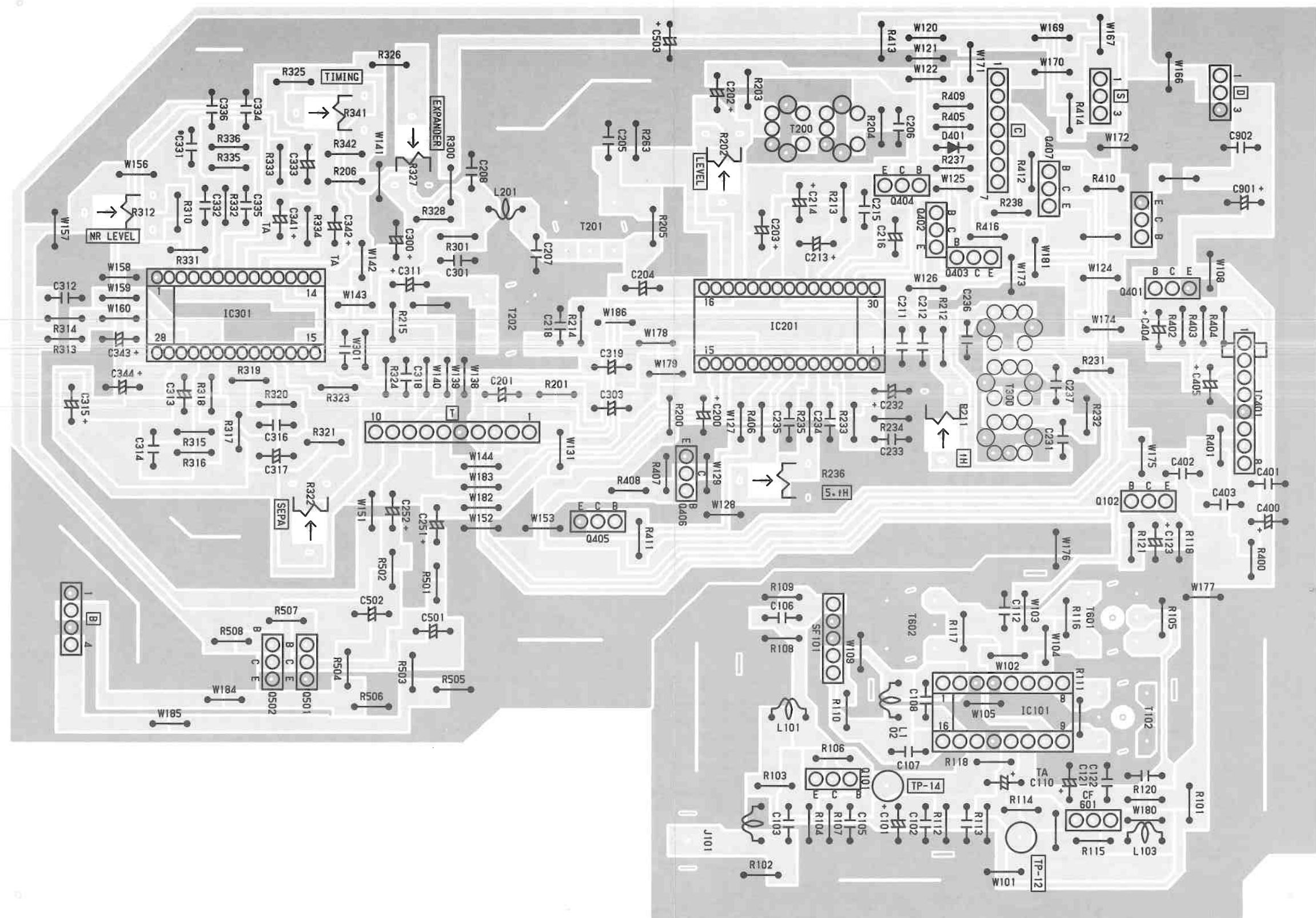






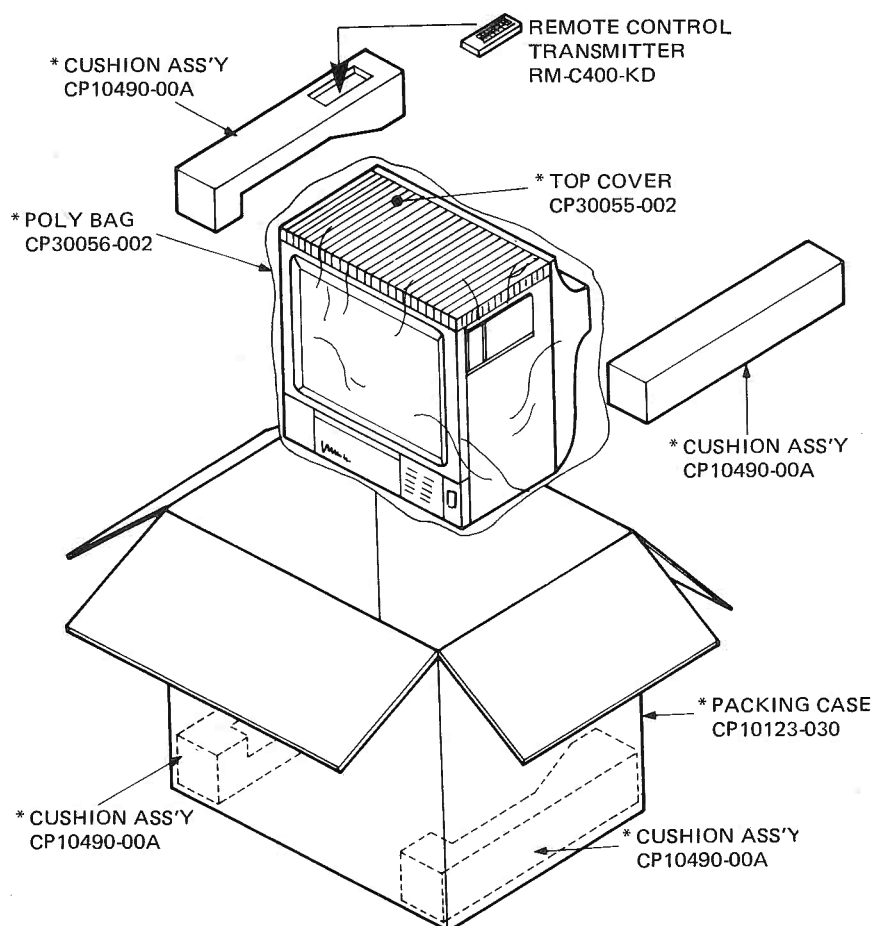
## CK10305-D01-1





## 8. PACKING DIAGRAM

\* : LOCAL PARTS



### ATTACHED MATTERS

Instruction Book . . . . .	AV-2676-IB-A
Safety Tips . . . . .	BT10566-001
* Rec. Keeping Card . . . . .	CM20923-00A
* Warranty Card . . . . .	CM20924-00B
Reflector . . . . .	CM20627-A01 (x2)
Remote Control Transmitter . . .	RM-C400-KD



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